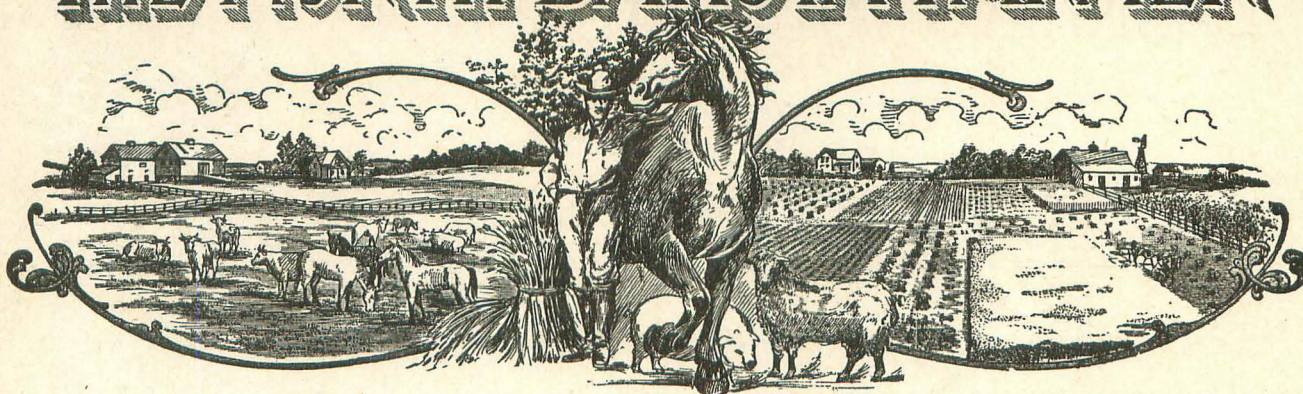


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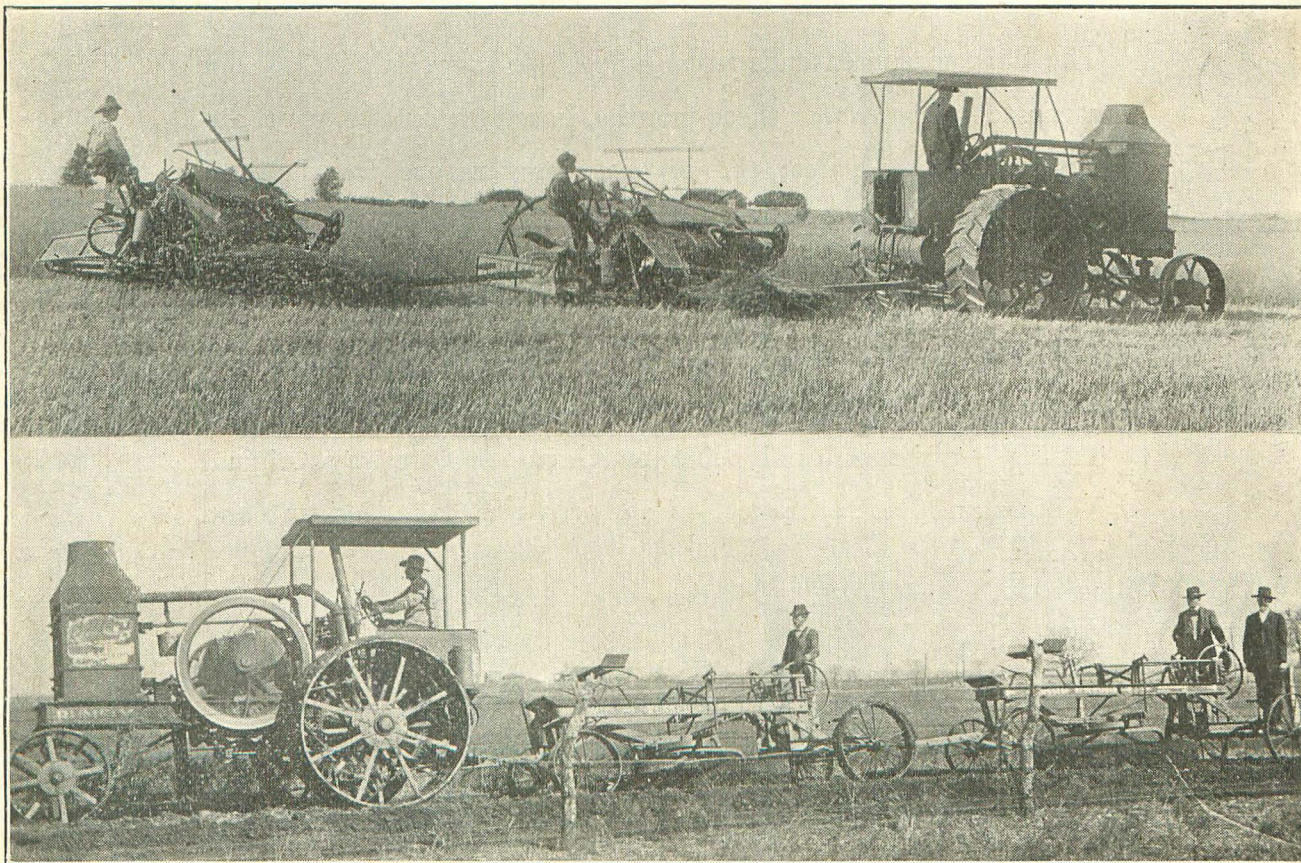


"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Vol. 15 No. 1

Lisbon, North Dakota, July 15, 1913

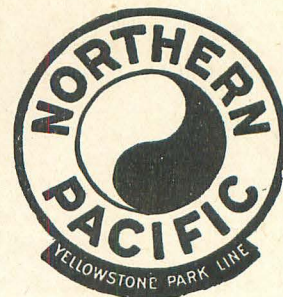
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THE NORTH DAKOTA FARMER

Vol. 15, No. 1

LISBON N. D., JULY 15, 1913

50 Cents a Year

Educational Exhibit of the Agricultural College at the Interstate Fair

The N. D. A. C. has one of the most instructive exhibits at the interstate fair. If one wants to know the name of a bird or weed, the value of a food, how to plan a rotation, what our soils are made of, what stock foods contain, methods of adulterating foods and one hundred similar questions the answers are to be found in the North Dakota Agricultural College exhibit.

It is doubtful if so much material of so educational a nature has ever been assembled at a fair before.

One booth contains mounted specimens of a large number of the North Dakota birds, hawks, owls, ducks, etc. These are all labeled and Dr. Bell very entertainingly explains the value of these different birds as well as something of their history and habits. He has also mounted specimens of gophers, prairie dogs, rabbits, mice and other mammals that are common in this state.

Prof. Miller has an exhibit of several of the live animals and especially of the smaller ones, as rabbits, gophers, tadpoles, alligators, guinea pigs, etc.

The pure seed laboratory has for its main feature specimens of all the different kinds of weeds, grasses and shrubs, in fact, most of the native and cultivated plants. These are all fresh and labeled so that one can at a glance learn the names of these different plants and more especially if troublesome weeds have started in one one's farm and the name is not known—here is where it can be learned. One can also get information as to the nature of the weed and the best methods of eradication. Usually these exhibits have been of the dried and mounted specimens. Plants are considerably changed in the drying so that it has not been always so easy to identify the different plants, but having them fresh just as they grow there is no trouble whatever in making the identification. There are also exhibits here to illustrate the root rot of wheat and other diseases of plants, and information is also given as to how the bad effect of these weeds can be lessened, if not eradicated. Another exhibit shows the weed seeds that are often to be found in grass seed. This is one of the big things that the pure seed laboratory is doing—in

inspecting the seed that comes into the state it is doing much to reduce the weeds that used to be so commonly introduced in the different seeds that went to the farmers. There are also exhibits to illustrate the value of North Dakota flax as a fiber plant.

The Home Economics Department of the Agricultural College has a very interesting exhibit of dressmaking and the preservation of fruit, etc. The dressmaking exhibit contains charts to show how patterns for the different garments can be made. This exhibit must really be seen to be appreciated. Several dresses are on exhibition. These are the work of the girls. A blue work dress is shown that costs \$1.20. A white dress which would seem good enough to wear any place had the statement attached to it: cost \$3.25. The millinery exhibit illustrates the process of hat making as taught at the A. C. One of the finished hats was labeled as costing \$2.50. From looking at it, however, one would judge that it had cost a good many times this amount. It illustrates very nicely how a knowledge of materials and skill in making things makes it possible too to produce fine things at but a small cost. The fruit exhibit showed up splendidly. It is not often that one sees fruit that is so clear and that holds its form so well. On inquiry it was found that the process employed was somewhat as follows: For putting up fruit without sugar the cans and caps were put into a boiler in the bottom of which had been placed a false bottom, and boiled for an hour to kill all bacteria, molds, etc. The fruit was flushed with hot water, that is, hot water poured over it, and then put into the cans which were set into the boiler and boiled five to ten minutes. Vegetables were put up in the same way except that a tablespoon of salt was added to each quart of water, and the vegetables were boiled ten or fifteen minutes before being put into the cans. Other fruit was shown that had been put up by the hot syrup process. The procedure in this case was somewhat similar to the hot water process, except that the liquid put on the fruit after it was put into the can consisted of one-quarter cup sugar to each cup of water. The spiced vinegar process

differed in that the juice poured over the fruit consisted of one and one-third cups of vinegar, two-thirds cup boiling water, one teaspoon mixed spices, cloves, mace, cinnamon and a tablespoon of sugar to each pint of fruit. The thick syrup process consisted in putting over the fruit one cup of sugar and one-half cup of water to each pound of fruit. The sugar and the spiced vinegar were strained thru cotton batting before being put on the fruit. This helps to keep the fruit clear. Miss Taylor and Miss Jensen were in charge of this exhibit.

The Chemistry Department has exhibits to illustrate the different salts contained in soils and water, the different constituents of fertilizers, the by-products secured in the manufacture of the different farm crops, the constituents of stock foods—in fact these exhibits illustrate the composition of pretty nearly everything that can be used on the farm, either in the form of foods, medicines, fertilizers or for killing insects, etc. There is quite an exhibit to illustrate the make-up of patent medicines, showing that some contain harmful ingredients and that whoever takes them incurs considerable danger, while others again are made up of the cheapest kind of compounds and harmless but sell for a good big price per bottle when the cost of making it was perhaps only a cent or two. This department is laying considerable stress on sanitation. It had plates to illustrate the number of bacteria inside of a store and out in the street for instance, and it showed that the numbers of these bacteria in the street was a great many times as many as those inside which of course emphasizes the fact that foods should be covered and especially so when placed outside of a building.

The Geological Department has an exhibit that illustrates the rocks from which the soils of our state are made. It also illustrates the different geological formation of the state and has samples of a good many of the rocks, fossil trees and other things that have been produced during the geological history of our state. Some attention is also given to the lignite deposits which are so abundant.

In the agricultural exhibit is worked out a rotation of crops, which represents on a small scale a 320 acre farm laid out to an 8-year rotation as follows: corn, wheat, barley, clover and timothy, pasture, flax, wheat, oats. Each field has the crop which should be grown on it in 1913 so one really gets a bird's eye view of the 320 acre. The following ten reasons were given for

order to have this 8-year rotation practiced. It is also interesting to note that the wheat which should be wheat after corn comes from a plot on the experiment station and is wheat after corn. The barley, again, which should be barley after wheat actually comes from a plot on which wheat was grown last year. So that these plots actually show what the crops would be in case they were grown in an 8-year rotation. Above these rotation plots is the following legend: "An 8-year rotation for a 320 acre farm in the Red River Valley." The following ten reasons were given for rotating the crops: (1) Crops follow each other so that good returns are secured. (2) One-half of farm in crops that give direct returns. (3) Feed is provided for stock so straw can be made into manure. (4) It contains a clover crop which supplies nitrogen. (5) It contains cultivated and grass crops which reduces weeds. (6) It is economical of fencing. (7) It contains the most important crops grown by farmers in the Red River Valley. (8) It provides for a maintenance of soil fertility. (9) It provides for an economic distribution of labor. (10) The income from the farm will be fairly constant from year to year. Another exhibit here illustrated the growing of winter wheat. That grown on fallow and corn stubble was a very good growth, while that grown in barley stubble was rather small. Part of this exhibit consisted of the different apparatus that are used in determining soil moisture and the different constituents of the soil. It was quite striking to think that so much apparatus can be used on so common a thing as the soil and that to learn about our soils is no simple matter. On one chart was given the results of some work done on soils. It brought out the fact that the virgin soil contained 13,268 pounds of nitrogen, while that which had been in wheat for 30 years contained but 9,158 pounds, so that there had been a loss of 4,110 pounds in the 30 years or 137 pounds per year. This same virgin soil, also contained 2568 pounds of phosphorous, while that which had been in wheat 30 years had but 1825 pounds left which meant a loss of 742 pounds or 24 pounds per year. This by the way was work done by a student. One interesting exhibit was samples of the different legumes showing the nodules on their roots. Prof. Doneghue was in charge of this exhibit.

The Engineering exhibit contained a good many pieces of apparatus to illustrate electricity and the different uses to which it is being put on the farm. Such things as the telephone, electric bells, electric meters were illustrated so that one could see exactly how they work. There were also models of steam engines, pumps, etc., to illustrate the inside workings of these different pieces of machinery. The Wood Working Department had different pieces to illustrate the different

stages which it has been found best to conduct a student in getting a knowledge of this subject. There were a good many exhibits from the blacksmith shop representing work of the students. This also illustrated the different stages that they go thru in learning the handling of iron. Another interesting exhibit in here was a model of a plant for producing electricity from wind. This is one of the problems that our inventors have spent a great deal of time on but it has remained for George and Wallace Manokowski, students of the Agricultural College, to work out the process. The model that they had here was based on the plant which they have on their own farm and which has been supplying electricity for lighting the farm, and for running the electric iron, washing

machine, fanning mill, cream separator etc. The trouble has been that the wind was too irregular to run a generator. The Manokowski's overcame this by inventing a governor and an automatic regulating device so that if the mill ran too slow it automatically cuts out the generator and thus maintains a constant speed. This model represents the windmill and automatic governor as well as the generator and the different pieces of apparatus that are run. It is interesting to note too that a complete plant can be provided for some \$350. and when it is once installed the expenses for maintenance is practically nothing. The Engineering exhibits are in charge of Professor Keene and Mr. Corbett.

The American Commission on Agricultural Co-operation. Its History, Its Aim, Its Possibilities.

Editor's Note: With the dual object of procuring improved credit facilities and an increased control over markets for American farmers, the American Commission on Agricultural Co-operation has just set forth upon a trip thru fourteen countries of Europe to study the co-operative systems which have so greatly strengthened the position of European farmers. This article is to introduce our readers to the Commission.

Most reform is experimental. Many new schemes are tried, a few of which are found to be practical and beneficial and a great many of which are consigned to the rubbish heap. "Many are called but few are chosen."

It is seldom that reform is offered which has been subjected to test thru all the changing conditions of a century. Such is the case, however, with the systems of agricultural credit and the organizations based upon co-operative effort which it is proposed to copy from European countries for the benefit of American farmers. It is possible for the farmers of this country, thru their representatives, to exhaustively examine every detail of organization and the routine operations of these systems of which so much has been written during the last year or two in American publications. This is exactly what the American Commission on Agricultural Co-operation proposes to do.

It is as nearly a body representative of the agricultural interests of the United States as its organizers, the Southern Commercial Congress, could make it.

It has the indorsement of the National Farmers' Congress, the National Grange and the National Farmers' Union. As the support of the government, both federal and state, is necessary in the execution of such work, the Commission has secured a representation from the federal government thru seven federal commissioners appointed by President Wilson and from the states thru state delegates holding credentials from their Governors. It also has the express indorsement of Congress and of the House of Governors. The federal commissioners will submit a report to Congress and the state delegates one to a committee of nine Governors appointed at the last conference of the House of Governors. Practical bankers have also been placed upon the commission, as several of the questions to be dealt with require a knowledge of banking conditions and practice in the United States. The fitness of the federal commissioners for their work may be judged from a statement of their callings. They are:

Duncan U. Fletcher, Senator from Florida, an ex-farmer; Thomas P. Gore of Oklahoma, chairman of the Senate Committee on Agriculture; Representative Moss of Indiana, who was called from his Hoosier farm to serve his district in Congress and who has been made chairman of the House Committee on Expenditures in the Department of Agriculture; Kenyon L. Butterfield, president of Amherst College and a member of the Roosevelt Country Life Commission; Clarence J. Owens, formerly pres-

ident of the Southeastern Agricultural College of Alabama, and now managing director of the Southern Commercial Congress, Col. Harvie Jordan, president of the Southern Cotton Growers Association and John Lee Coulter, the government's expert on agricultural statistics. The state delegates are also chosen to secure a preponderant representation of agricultural interests with enough lawyers, bankers and economists thrown in to properly balance the mental make-up of the Commission.

Such is the constitution of the American Commission. Now as to its aims. It is money that makes the mare go, they say, and so the first effort of the Commission will be to care for the money needs of farmers. The members of the Commission believe that they can accomplish two things in this connection—first to effect a saving to farmers by reducing the interest rates on their loans, and second, to better the terms and increase the availability of loans.

The co-operative idea is the basic principle of most of the agricultural credit systems of Europe and tho it is possible that in a system established in the United States, a part of it might have to be formed along other lines as has been done in some of the European countries, still the greater portion of the system would rest upon co-operative effort and the formation of co-operative organizations for this purpose would pave the way for further co-operative undertakings. Thus a farming community which had successfully operated a co-operative credit society for some time and had learned the value of co-operation in borrowing money, would be lead to establish a co-operative supply society for the purchase of machinery, seeds, and fertilizers.

From such a society it would be a short step to organize a co-operative marketing association for the packing, shipping and marketing of the produce of an entire community.

This is indeed an ambitious program and calls for many years of persistent effort. As Senator Fletcher, chairman of the federal committee accompanying the Commission, said, before the departure of the Commission from New York, "The task before the Commission is more than the short three months work that lies before us in Europe. Let us remember that this undertaking in which we are engaged is unknown even in principle in this country and that its lessons must be spread among twelve million farmers distributed over the three million square miles of this Union. Let us do our share, not for three months, but for as many years as may be necessary. Let the bankers co-operate, for this work will profit them, since it will increase the wealth of the nation and better banking conditions. Cut above all let

the farmers of the country sustain us. With such support we will accomplish our task."

But if the task seems large the benefits promised warrant the effort. This is the way in which Senator Gore of Oklahoma emphasizes the possibilities of this undertaking from the viewpoint of southern farmers:

"The fertility of the soil is our greatest patrimony. The soil should not be mined but should be maintained and conserved. Production should be raised to the maximum of efficiency per man and per acre.

Increased production, however, should not be penalized. Fruitfulness should not be fined as an offense. Something more than the law of supply and demand is responsible for the fact that a fifteen million bale crop of cotton brought \$730,000,000 in 1911 and less than twelve million bales brought \$820,000,000 in 1910. The want of an organized market, the lack of concerted action is responsible for the fact that more than three million bales of cotton were worth \$100,000,000 less than nothing. Increased production must be accompanied with improved marketing facilities.

"The farmer has been fettered by the want of working capital. Soil improvement, increased production, better market facilities have all been handicapped by lack of effective credit amongst the farmers."

The Commission proposes while on its way to Italy to effect an organization to provide for the conduct of the European investigation. Upon its return home, the work of drafting the reports to Congress and to the House of Governors will be taken up. Then a permanent organization will be proposed in which the American Commission as it is now constituted will serve only as a nucleus. There are on the Commission a hundred delegates chosen for their fitness to carry on a work of this sort. They hail from every section of the country and have a status many of them either with the federal or their state government or with some influential organization interested in these matters. It is believed therefore that the Commission offers ideal material as the basis for any permanent organization that is to carry on the work. It has affiliations with the leaders of the movement in every country of Europe and can rely upon them for information or whatever assistance may prove necessary from such quarters. There are several other organizations interested more or less directly in this work. It will be the aim of the American Commission to secure the affiliation of these interests. For instance the three farmers organizations previously mentioned will be invited to support the work. Then there is the American Bankers' Association,

the conference on farm markets and farm credits recently organized at Chicago, and a number of other agricultural and general welfare organizations as well as some important private sources of support. There is undoubtedly room for all of these in the great work to be undertaken but it is essential that some central focus be secured or else every one will be working at cross purposes and the destructive evils of factionalism will be sure to appear. But the source of support most essential to the entire undertaking lies in the individual farmer. The whole undertaking will live or die according to the interest or apathy manifested by the farmers themselves. After all it is the farmers who must do the work for the essence of the plan is self-help. Government support or at least government subsidy is strictly alien to the plan and all that the American Commission or any other organization can possibly do is to spread an understanding of the principles involved. Private endowment can do much to spread the doctrine but neither private nor Government charity can build and maintain co-operative undertakings. This has been proven time and again in Europe. And certainly if it is true among European farmers it is bound to be true among those of the United States. So the farmers will have to give their support to the American Commission if it is to succeed. In the next few months every thing possible will be done to give the farmers an understanding of the systems which it is proposed to establish. After that everything will depend upon the response of the farmers.

A CONCRETE SMOKE HOUSE FOR \$65

C. F. Chase, Asst. Prof. Agr'l Engineering, N. D. Agri. College

Why pay 25 cents for smoked meats when with a few old cobs you can smoke it for nothing?

Some years ago when all farmers understood butchering and the curing of meats, few of them were without a smoke house and a meat storing room of some kind. Upon the advent of the centralized plant or packing house a great majority of our farmers have lost this art.

With the present market value of fat stock and the high price of cured meats it is easily profitable for farmers to cure meats for home use or even for the local trade.

One of the essentials for good meats is a properly designed smoke house. This should be a fireproof building. The accompanying figure shows plans of a concrete structure about the proper size for an average farm.

The fire box, for convenience, is placed on the outside of the building. Here the fire and smoke can be easily replenished or controlled; also, with this arrangement

there is little danger of the meat overheating.

This house is suitable for storing meats. It is cool and sanitary. With a good lock on the door and a burglar alarm attachment the meat should be comparatively safe from thieves.

With cement at 50 cents and lumber at \$30 per M this house will cost \$65 not in-

16—2x4x8

600 ft. sheathing.

(Set studs for the forms 2 feet on centers wiring at middle making a 4 foot span.)

FARM FINANCING IN GERMANY

Abstract of an address by Homer C.

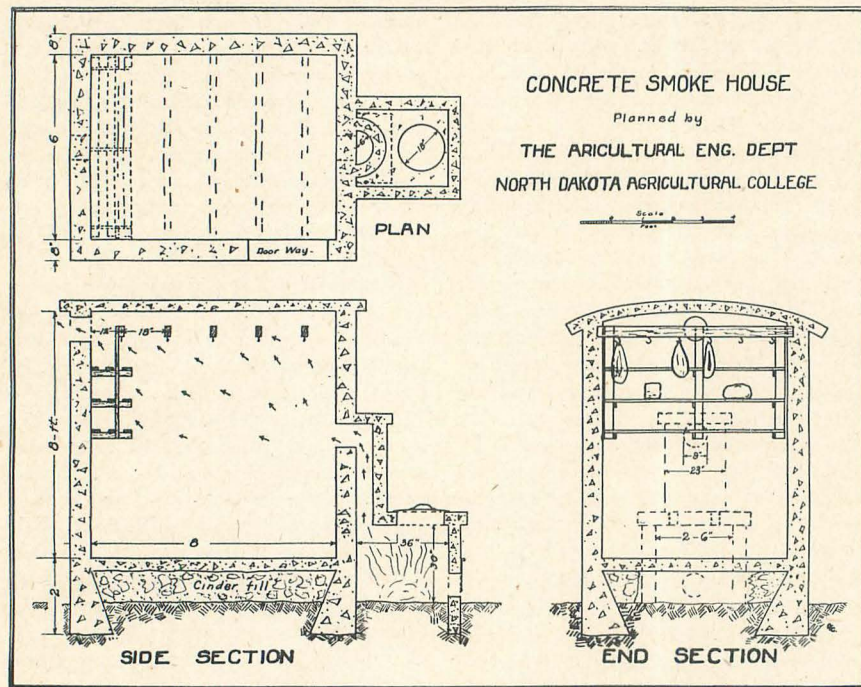
any other equal area in Europe or America.

German farmers regularly secure long time farm loans at 4 per cent interest, thru their co-operative farm mortgage banks—the so-called landschaften societies. These societies are farmers' organizations pure and simple, under direct government control, and have outstanding over one billion dollars in farm loans. The loans are repaid in small annual installments and after once made cannot be called in or the interest rate raised.

The land mortgage banks of Germany are simply the result of applying business principles to farm finances. Instead of each farmer seeking his loan individually, they have organized and substituted collective credit for individual credit and a negotiable for a practically non-negotiable security. They have organized to market their farm securities to better advantage and to avoid the tremendous waste of time and expense involved in each farmer borrowing individually.

For personal credit, the Germans have developed their Raiffeisen system of rural banks, which are the model of the world and in the last half century have spread over practically all Europe. In Germany alone there are over 16,000 such institutions doing a business of over five million dollars a year. Thru these banks the landless "man" with character, industry and health, has opportunity to borrow working capital to begin farming. At the same time they serve as savings banks for the rural population in which they may invest their earnings and secure interest on them. It is a remarkable fact that seventy-five per cent of the working capital of these banks is derived from the savings deposits of the rural population.

The agitation for a better rural credit system in America is no passing demand that will be superseded by something else next year. It is fundamental to a permanent system of agriculture. With an



cluding labor. Following is the bill of material:

- 48 sacks cement
- 4 loads (\$1 yd.) sand
- 8 loads stone
- 1 door
- 2 2x8x12 ft. (door frame)
- 3 2x4x14 feet (for the meat hooks)
- Lumber for forms
- 16—2x4x10

Price, Dean, College of Agriculture, Ohio State University, to the First National Conference on Marketing and Farm Credits, at Chicago, April 20.

Germany has the best system of farm financing in the world. As a direct result of this, German agriculture is on a permanent basis, and the average crop yield of the German Empire is greater than for

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investment of over \$40,000,000,000 in agriculture and an indebtedness of over \$6,000,000,000. American farmers are beginning to awaken to the fact that they are paying from \$100,000,000 to \$125,000,000 more interest each year than would be necessary if they had their credit system properly organized. We talk about economy in marketing and distributing farm products. But where is there the opportunity to make the saving that there is in marketing farm securities? There is no better security than arable farm lands, but until the mortgages are converted into negotiable securities the farmer making a loan on his farm mortgage is handicapped just as much as a farmer a hundred miles from a shipping point is in marketing his wheat crop. He is too far from the market. It costs too much to get into the channels of trade.

What American farmers need is not government loans or any special concession from bankers; it is simply to organize their securities so that they will be desirable collateral for any kind of a loan. It is because rural credit is not organized in this country that farmers pay from two to three per cent more interest than other industrial enterprises do on security that is not so good as the farmer offers.

BIRDS AND RODENTS

An Extract from The Extension

The amount of damage done each year by small rodents such as rabbits, hares, gophers, ground-squirrels and prairie-dogs, is usually fairly well appreciated. The number of different species of mice which the biological survey work has shown to be present, hiding not only about houses, barns, granaries and meadows, but along fence-rows, sloughs and strips of timber, with their enormous possibilities of increase and mischief to crops, stored grain and trees is not so well understood. Neither is the important work of hawks and owls in holding these pests in check at all adequately realized. Deep-seated prejudice against these birds still holds sway. Farmers and hunters shoot them down at sight with little thought of the loss which this thoughtless destruction may entail. The possibilities of loss thru this condition of affairs was set forth with remarkable clearness in 1886 by Dr. C. Hart Merriam, for many years Chief of the U. S. Biological

Survey in discussing the law passed, but soon repealed by Pennsylvania providing a bounty on hawks and owls. "On the 23rd of June, 1885, the legislature of Pennsylvania passed an act known as the "scalp act," ostensibly for the benefit of agriculture, which provides a bounty of fifty cents each on Hawks, Owls, Weasels and Minks killed within the limits of the state and a fee of twenty cents to the notary or justice taking the affidavit.

By virtue of this act about \$90,000 has been paid in bounties during the year and a half that has elapsed since the first law went into effect. This represents the destruction of at least 128,571 of the above mentioned animals, most of which were Hawks and Owls.

Granting that 5,000 chickens are killed annually in Pennsylvania by Hawks, and Owls, and that they are worth twenty-five cents each (a liberal estimate in view of the fact that a large portion of them are killed when very young) the total loss would be \$1,250 and the poultry killed in a year and a half would be worth \$1,875. Hence, it appears that during these 18 months the State of Pennsylvania has expended \$90,000 to save its farmers a loss of \$1,875. But this estimate by no means represents the actual loss to the farmer and the taxpayer of the state. It is within bounds to say that in the course of a year every Hawk and Owl destroys at least a thousand mice or their equivalent in insects, and that each mouse or its equivalent so destroyed would cause the loss of two cents per annum. Therefore, omitting all reference to the enormous increase in the numbers of these noxious animals when nature's means of holding them in check has been removed, the lowest possible estimate of the value to the farmer of each Hawk, Owl and Weasel, would be \$20 a year, or \$30 in a year and a half.

Hence, in addition to the \$90,000 actually expended by the state in destroying

128,571 of its benefactors, it has incurred a loss to its agricultural interests of at least \$3,857,130, or a total loss of \$3,947,130 in a year and a half, which is at the rate of \$2,631,420 per annum. In other words the state has thrown away \$2,105 for every dollar saved. And even this does not represent fairly the full loss, for the slaughter of such a vast number of predaceous birds and mammals is almost certain to be followed by a correspondingly enormous increase in the number of mice and insects formerly held in check by them, and it will take many years to restore the balance thus blindly destroyed thru ignorance of the economic relations of our common birds and mammals." The above view was well substantiated by subsequent developments and investigation. Fortunately no such folly has occurred in North Dakota as the passage of a law paying a bounty on Hawks and Owls, nevertheless, this indiscriminating slaughter still goes on because of prejudice and just for the fun of shooting something. If it be true, (and it is well within the true value) that each Hawk and Owl on the average is worth \$20 per year to the farmer it is high time that people stopped to think and discriminate before shooting. No sane man would deliberately shoot a farmer's pig or calf worth \$20 just for fun. Then why shoot these birds which are equally valuable to the farmer and the state?

There are three Hawks: Cooper, Sharp-Shinned and Goshawk; and one Owl: Great-Horned Owl, that are positively harmful and may very properly be shot. But the rest of the Hawks and Owls commonly resident in North Dakota belong to the class which are either entirely beneficial or the beneficial qualities outweigh the harmful. The harmful features of these latter may readily be overcome by reasonable protection of the poultry, encouraging King-Birds and Purple Martins to nest about the poultry yard or premises and oc

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FARGO, NORTH DAKOTA

asionally shooting a particular Hawk or Owl which is positively known to have acquired the habit of killing poultry.

THE DIVINING ROD

The United States Geological Survey states in Water-Supply Paper 255, entitled "Underground Waters for Farm Use," just re-issued, that no appliance, either mechanical or electric, has yet been devised that will detect water in places where plain common sense and close observation will not show its presence just as well. Numerous mechanical devices have been proposed for detecting the presence of underground water, ranging in complexity from the simple forked branch of witch hazel, peach, or other tree to more or less elaborate mechanical or electric contrivances. Many of the operators of these devices, especially those who use the home-cut forked branch, are entirely honest in the belief that the working of the rod is influenced by agencies—usually regarded as electric currents following underground streams of water—that are entirely independent of their own bodies, and many people have implicit faith in their own and others' ability to locate underground water in this way. In experiments with a rod made from a forked branch it seemed to turn downward at certain points independent of the operator's will, but more complete tests showed that this downturning resulted from slight and, until watched for, unconscious muscular action, the effects of which were communicated thru the arms and wrists to the rod. No movement of the rod from causes outside of the body could be detected, and it soon became obvious that the view held by other men of science is correct—that the operation of the "divining rod" is generally due to unconscious movements of the body or of the muscles of the hand. The experiments made show that these movements occur most frequently at places where the operator's experience has led him to believe that water may be found.

The uselessness of the divining rod is indicated by the facts that it may be worked at will by the operator, that tunnels and other channels afford no surface indications of water, and that his locations in limestone regions where water flows in well-defined channels are no more successful than those dependent on mere guess. In fact, its operators are successful only in regions in which ground water occurs in a definite sheet of porous material or in more or less clayey deposits, such as pebbly clay or till. In such regions few failures can occur, for wells can get water almost anywhere.

The only advantage of employing a "water witch," as the operator of the divining rod is sometimes called, is that crudely skilled services are thus

occasionally obtained, for the men so employed, if endowed with any natural aptitude, become thru their experience in locating wells shrewd, if sometimes unconscious observers of the occurrence and movements of ground water.

A copy of the report may be obtained free on application to the Director of the Geological Survey, Washington, D. C.

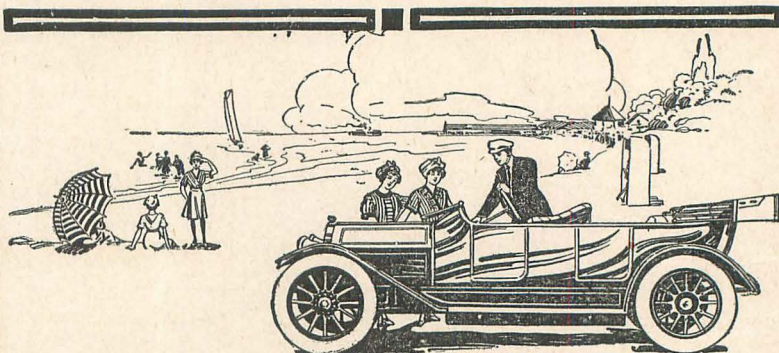
WHEAT TO BREAD

Bread is the end of wheat. The test of wheat is the bread that can be made from it. One of the interesting places to visit at the Agricultural College is the flour mill. As one enters the first thing that greets one is the smell of bread. Loaves of bread are in evidence. These loaves are the measure of the bread making qualities of the wheat from which the flour was made. In making the bread the same amount of flour, salt, sugar, and yeast are taken. They are all mixed in the same machine, and baked in electric ovens. The amount of water varies with the quality of the flour.

It is interesting to know that the hard spring wheat, such as raised in North Dakota, produces the best bread. For instance, loaves of bread made from soft wheat, hard winter wheat, and North Dakota spring wheat vary considerably in

size. The first is the smallest and the last the largest. Loaves were also shown that were made from wheat that had a small amount of weed seed ground in the flour. In each case the weed seed darkened the loaf considerably.

The mill is very complete. The machines are small, but can do the same work as any commercial mill. The first process is to run the wheat thru a cleaner to remove weed seed, and any other foreign matter. Still there may be dust particles on the wheat kernel. To remove these the wheat is scoured. This consists in running it thru a cylinder inside of which beaters revolve so as to throw the wheat kernels against the outside with some force. This knocks off any dirt that may be on the wheat, as well as the little hairs. The next process is to temper the wheat. This consists in moistening the wheat kernel slightly. The object of this is to toughen the outside covering of the kernel. This makes it tough so it will not grind up and get into the flour. The wheat is now ready for grinding, which is done by rollers and not by mill stones as was done years ago. The first sets of rollers are corrugated, while the others are smooth. These rollers do not revolve at the same speed. One goes about twice as fast as the other, which produces a grinding as well as a crushing force. After the wheat goes thru a set of rollers it is sifted to divide the ground ma-



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(133)

terial into several grades. The coarse particles pass on to the next set of rollers and so on. The flour is usually stored awhile after grinding, as aging improves it. Then comes the baking to get the measure of the wheat value for bread-making.

The mill is run co-operatively by the United States Department of Agriculture and the North Dakota Agricultural Experiment Station. It is the most complete mill at any experiment station, so the department of agriculture sends wheat here from other states as well as foreign wheats for milling.

Levi Thomas is in charge of the mill under the direction of Prof. E. F. Ladd and the U. S. Department of Agriculture. Thomas Sanderson is the miller.

The object of this work is to learn the values of different wheats for bread-making as well as to get at the effects of different ways of handling the wheat; and to put this information in the hands of the farmers. Work is being done, for instance, on the effect of putting wheat in the stack or threshing from the shock. Trials are made of all kinds of ways of handling the wheat, both before and after threshing. The mill means much to the farmers of North Dakota.

FERTILITY EXPERIMENTS

Extension Department, N. D. A. C.

The North Dakota Experiment Station receives many requests for advice relative to the purchase of fertilizers of various kinds. The results of the Station's work conducted in the past show that none of the common fertilizers on the market show a profitable response. See Bulletin No. 75, N. D. Experiment Station, page 303. The results at some other stations indicate that the second year's effects are often as great or greater than the first year's effects. In order to be able to answer such inquiries definitely extensive fertility experiments have been inaugurated. These will give additional information relative to the methods that must be followed to conserve the fertility of the soil and thus maintain a permanent system of agriculture with profit in livestock and grain farming system. The general plan of study is to conduct a four-year rotation consisting of corn, wheat, clover, oats, each one year, in the livestock farming system and a similar rotation consisting of

potatoes, wheat, clover and barley, each one year, in the grain farming system. Each crop in the rotation will be represented every year in both systems and each of the following treatments will be made to each crop in duplicate. There will be four treatments in the livestock farming system as follows: (1) farm manure, (2) farm manure and steam bone meal, (3) farm manure, steam bone meal and ground limestone, (4) farm manure, steam bone meal, ground limestone and sulphate of potash. In the grain farming system the four treatments are as follows: (1) crop residues, (2) crop residues and steam bone meal, (3) crop residues, steam bone meal and ground limestone, (4) crop residues, steam bone meal, ground limestone and sulphate of potash.

In the livestock farming system the farm manure is applied to each plot in proportion to the amount that could be produced if such a system were practiced on the farm, and the corn, clover and a part of the oats fed to stock.

In the grain farming system crop residues includes the straw, clover haulings, etc., which will be returned to the land and plowed under for the potato crop. The phosphorus and potash will be applied in such amounts as to maintain the soil content of each.

The total number of plots, including duplicates and check plots, is 72. This experiment was started in 1911.

opened their new creamery with a monster picnic.

They had a grand parade headed by the Indian Cornet Band from Fort Totten and followed by many of the tribesmen. In the line were a large number of "Milk Maids" dressed in white and carrying tin pails and milking stools. Another feature of the parade were a number of dairy cows wearing blankets on which was printed "Give me a boost, I'm your friend," "Hurrah for the Creamery, Sheyenne Booster," "Good Bye to weeds and wild oats."

The business houses of the town were represented by very appropriate floats, one of which was labeled "Cream of the Forests" and carried about 80 school children.

The parade was a mile in length in which about 2000 people participated. The march led to the creamery where speeches were delivered by Mr. Burns of the Better Farming Association and Professor Martin of the Agricultural College. After the program the Indians gave a number of War Dances, then ice cream and butter milk were served to all present. The first creamery picnic at Sheyenne was a model for any dairy community.

The great American hen has again been honored—this time by the government of Uruguay, according to information received by the State Department. It is reported that the South American government has imported 600 hens for the improvement of native stock. The fowls are to be distributed to experimental poultry stations under the charge of Alfonse Burke, an American.

BIG CREAMERY PICNIC

The farmers and businessmen of Sheyenne, N. D. have the right spirit when they let the dairy cow do the boosting for the community. On the 28th of June they



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When does an "infant industry" cut its teeth? The people of this country have been nursing some of these offspring for half a century.

Clover of itself may not be of so very much value, yet we should plant it "for the good it will do." It is a veritable nitrogen factory.

Have you thought again of that bushel of wheat that will help in building a dormitory at the A. C.? Read again the article on that subject found in a previous issue. Think it over.

The observing farmer will foresee a scourge among his sheep in the one lame lamb. There is no necessity of foot-rot if the first appearance of the disease is noted and the case is immediately treated.

Weeds are like a hole in the pocket or rather like a pickpocket. Therefore kill weeds. In killing weeds you not only get rid of a pest, but build a wall (dust mulch) that will prevent further depredations upon the soil water.

We can not commend too highly the Boys' Encampments of the past season. It is a rare opportunity for the favored ones. The enthusiasm created will be the means of leavening every community from which these boys came with a deeper interest in better farming.

The price of \$10 for a veal calf is quite a temptation to sell, but if the young calf will bring \$10, why should not the full-grown beef pay? No wonder the price of meat soars. There is an excellent "market" for your grain in the growing animal. Why not patronize that market?

Even a poor cow is better than none at all. She at least conserves the fertility. One has but to gaze over the fields of luxuriant wild oats to realize the need of a cultivated crop. Will the farmers of the state continue to waste their energy and money on such pests as wild oats and wild mustard?

Prepare a strawberry bed for next year. Strawberries will yield at least \$500 per acre, and in this state there is a constant demand. The care of the berry patch necessitates some work, but the plants need attention when the farmer is least busy with other matters. The children, after enjoying one season's fruit, will afterward be willing workers. Try a few hundred plants this fall.

There is no more economical "corn harvester" than the hog. Last year in this state 89 winter pigs were finished off on a field of corn. They brought the neat sum of \$1,700. Seventeen acres were sufficient to summer over 200 head. Only about 40 acres were required for the raising of these hogs. Query: How many acres of land, how much annoyance with hired help, how much machinery would have been required, had the farmer raised grain enough to have realized the same profit as the hog harvesters yielded?

The picnic held at Sheyenne at the opening of the new creamery was a complete success. Certainly the cow is coming to her own. In the parade, which was a mile long and was headed by the Fort Totten Indian band, there were cows wearing such legends as the following: "Good Bye to Weeds and Wild Oats," "Give me a Boost, I am your Friend," and "Hurrah for the Creamery!" There were 60 children in one float, which bore the inscription, "Cream of the Forests." The 2,000 people in attendance listened with deep attention to addresses by Mr. Burns, of the Better Farming Association and by Prof. Martin, of the A. C. Such demonstrations give evidence of the awakening of our farmers to the advantages, yes, the crying need, of more creameries.

Conservation of moisture will be a live issue in the greater portion of North Dakota every year and in all parts of the state, occasionally. The season of 1913, however, started out exceptionally favored with moisture from last fall rains, together with the late spring snows of the present season. In fact, the ground was so deeply saturated with moisture that it should be considered disgraceful to permit a crop to suffer for want of moisture for several years to come, for not nearly all the moisture then in the ground was required to supplement this season's rain-

fall to produce a bumper crop. Considerable of it should be conserved for future seasons. Any sort of waste is bad enough, but to permit an element so indispensable as water, in the production of crops, to be needlessly wasted for want of proper tillage is worse than foolish. It is sinful.

While provision is being made in the schools for teaching manual arts, to enable boys to use their hands, and domestic science and household arts for the girls that they may be more helpful to their mothers and later become thrifty and dependable housewives, yet there appears to linger a reactionary element among educators that would keep the pupil's face in a book while in school, on the theory, doubtless, that the ordinary affairs of life do not rise to the dignity of school-room recognition. But the reactionary in education will have to keep company with the reactionary in politics—in the rear of the procession. The expense of carrying courses in Latin, algebra, and ancient history, as they are taught and to whom they are taught is considered by many very progressive educators a misuse of public funds. A very small percentage of school children only will profit by the study of such and similar subjects.

N. D. OR N. C.?

A lecturer from Washington, D. C., speaking to an audience of teachers at Valley City this month made the statement that North Dakota was one of the most notorious states for its bad roads, and coupled with that statement she said that where bad roads are there is an inferior school system. Probably because the speaker was from the nation's capital there was no protest made. The speaker said, "Upon this very platform I will show photographs of your own roads." Then followed picture after picture of the worst roads ever witnessed by mortal. The audience might have been convinced of the assertions made had not many of the scenes revealed negroes in abundance, pine trees, loads of cotton, and mules hitched up with horses. At last, when statistics were shown upon the screen it was found that N. C. was listed among the bad roads states, and not N. D. The lecturer must have made a mistake in reading the statistics. North Dakota has the best prairie roads in the Union. It is only when an attempt is made by those inexperienced in scientific road building that deserving complaint is made. North Dakota stands among the foremost in education as well as in agriculture, and she will soon take her place in the first rank of good-road states, if the same amount is expended on her roads under scientific supervision as is now wasted on road upheaval.

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Livestock Department

FARM AND STOCK NOTES

N. J. SHEPHERD

Rapid growth is profitable growth. Systematic work means regularity and carefulness.

A perfectly fitting collar never made a sore neck.

A horse will never drink too much, if watered frequently.

Complete development can only be had from generous feeding.

The usefulness of a horse depends very largely upon his early training.

The farmer is a bigger factor than the farm in successful farming.

Nothing will atone for poor processes and lack of care in buttermaking.

The dairy cow makes a market on the farm for the products of the farm.

Sheep require as little care as any stock but this care must be timely.

It pays less to handle a poor lot of horses than any other class of stock.

Economy is not hoarding money, but putting it where it will do the most good.

Check the growth and you increase the amount of food needed to produce a given result.

The production and fertility of eggs depends largely upon the care and feeding of the fowls..

The value of a cow depends as much upon the quality of her milk as the quantity.

There are three general faults in butter making: over-ripening of the cream; over-churning and over-working.

If feeding stock pays at any time, it is during the first year of the animals' existence.

There is no secret about the success of a man who adopts the best methods and works on them.

Manure will not wash as much fertility in the field as it will in the average farm lot.

Feed and care is one-half the battle in producing excellence in animals; breed and individual excellence the other half.

When any food deficient in fat is fed to the stock a quantity of linseed oil meal should be added to balance up the ration.

Cultivation has much to do with the fertilization of the crop. Stirring of the soil liberates and puts into available shape the chemicals in the soil.

The high grade butter cow will not only give more and better butter than the cow of no breed but she will do it at less cost.

The right way to build up a herd is to work upon pure stock and by culling and mating satisfactorily the results of the pure blood will beat those averaged by cross-breeds.

Pruning often improves the quality of the fruit. It thins the fruit, opens the heads of the trees, removes superfluous branches, admits air and sunshine thus making it possible for the fruit to mature and ripen properly.

The better the preparation of the soil the less seed will be required. Many failures in the seed are not due so much to lack of vitality in the seed as to the unfavorable condition of the ground. Thoro preparation not only saves seed but lessens the work of cultivation.

The cows on the dairy farm represent the equipment that produces a profit. If they fail there must be something wrong. They are the machine; the feed is the raw material; the milk or butterfat is the finished product and if the finished product is not all that may be desired, the fault may be with the raw material.

BREEDING ARMY REMOUNTS

The United States Department of Agriculture has completed for the present the purchase of stallions for the use in the encouragement of the breeding of horses

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for military purposes. Four Morgans, 10 Standardbreds, 11 American Saddle horses, and nine Thoroughbreds have been purchased. These stallions, with four or five Morgans from the Morgan Horse Farm and six Thoroughbreds presented to the Government, will be available for public service during the season of 1913, making a total of at least 44 stallions. Local wishes will be respected and the breed of the stallion placed in a community will be that which is most generally preferred by that community. Accordingly, the Morgans will stand in Vermont and New Hampshire, the Thoroughbreds mainly in Virginia, the Saddle horses and Standardbreds mainly in West Virginia, Kentucky and Tennessee. Furthermore, every effort is to be made to avoid competing with privately-owned stallions, and horses will not be placed in communities which are already well supplied.

The Government has not spared expense in the purchase of horses. The first requisites were that they should be good, sound individuals, and registered in the proper studbooks. Good breeding was therefore essential, and in many cases stake and show-ring winners were obtained, but no horse was bought solely because he was a race-winner or solely on account of his pedigree.

These horses will be available for public service on liberal terms. The owners of sound mares, with a square trotting gait, may breed such mares free of charge provided they give the Government an option on the foal during the year it is three years of age at \$150. However, the Government will not hold the breeder of a foal to his option if he wishes to be released, but will allow him to cancel the option at any time by paying the service fee. This fee will be \$25 for mature stallions, and less for those under five years of age. In buying the colts, the War Department has agreed to purchase both mares and geldings. No service fee will be charged unless the owner elects to cancel his option. If the Government buys the colt, no fee is charged; if the colt is offered to the Government and purchase refused, no fee is charged.

On account of the provision for free service, the Government believes that the mares bred should be suitable for the purpose, and therefore it will be necessary to breed only those which are free from the following unsoundnesses: Bone spavin, ring-bone, side bone, heaves, string-halt, lameness of any kind, roaring, periodic ophthalmia, and blindness, partial or complete. Mares must also be free from manifest faults of conformation, such as curby hocks; packing mares will not be bred. Approved mares will be given a certificate of registration in the Remount Brood Mare Register of the Agricultural Department.

STORAGE BUTTER BEING TESTED

Several members of the dairy division of the Department of Agriculture and Mr. Keefer, of Gould Brothers & Keefer, New York commission men, are in the midst of a test of storage butter. These men are official butter tasters in the tests and scoring of navy butter. Three hundred tins of butter packed for the navy from the making of last spring, are being examined and stored to determine their quality after months in storage. Mr. Keefer and three representatives of the dairy division are doing the storing, consequently they have to taste a sample from each 5-pound tin, to determine its flavor. The butter is rated on flavor, body, or appearance, and amount of salt. No chemical tests are made.

The scoring is being done in the presence of interested butter and commission men from all over the United States. About

50 tins of butter are tested each day, so that it is expected the experts will subsist at least a week on a diet of storage butter.

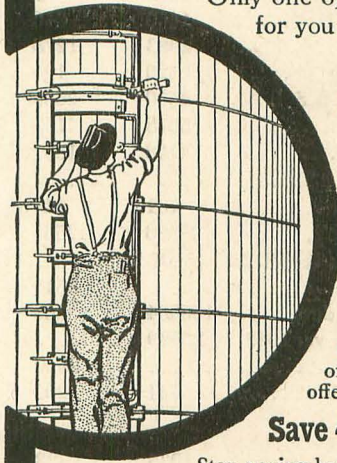
PRAISE FOR GOVERNMENT DAIRY

Members of the New York Milk Committee, which recently visited the institution where the Annapolis cadets obtain their milk supply, have written a letter to Secretary Daniels thru Secretary Houston of the Department of Agriculture, commending the Navy Department for the high standard of cleanliness maintained at the dairy. The establishment of this dairy was the result of the inability of the academy officials to get milk of dependable purity from outside sources for use in the kitchen and dining hall. With the assistance of the Department of Agriculture a dairy was established in 1911, which has brought most satisfactory results. A

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are made from "Puget Sound" fir—the choicest that grows. Straight and close of grain. No knots or sap. Wear for years and years.

The doors are of a new improved swinging type and quick detachable. The door bars form a safe, strong ladder, from which the hoops can be easily tightened. A great idea!

Write today for special silo folder. Our low prices will surprise you. We can usually arrange to give you the benefit of practically carload rates on shipments of single silos. Write for special offer to one farmer in each township.

Save 40% to 60% on lumber and millwork

Stop paying hold-up prices to the local lumberman. He gets his materials fifth-handed. Four other middlemen get big profits. No wonder lumber is high and the quality low.

With us, quality is high and price is low. We own thousands of acres of choice timber in Oregon, Washington and British Columbia. We cut and log the timber. Manufacture it into choice lumber and millwork in six big mills. Only one operating expense—only one profit. Shipments made within 24 to 48 hours. Average delivery, two weeks. Send us your bill of materials for estimate. Satisfaction guaranteed. Write today for catalog and delivered prices.

MAIL THE COUPON

Hewitt-Lea-Func Co.

440 Union Avenue

Seattle, Wash.

Hewitt-Lea-Func Co.

440 Union Ave., Seattle, Wash.

Kindly send the following, quoting prices delivered my station:

☐ Catalog of Lumber and Millwork

☐ Special Silo Folder

(Be sure to write plainly)

Name _____

Address _____

Business _____

I am planning to build as follows _____

herd of 75 Holstein cows is maintained, and a yield of about 300 gallons of milk daily is secured.

A NEW POTATO DISEASE

Attention was recently called by Pathologist I. E. Melhus of the Department of Agriculture to a disease of the potato which, tho little known, is becoming widespread in the United States. This is the silver scurf, which attacks and destroys the outer skin and causes discoloration and loss of moisture. Silver scurf in its early stages of infection under moist conditions causes blackish olive patches on the surface of the potato. Later the potato is covered with depressed patches of greater or less extent and as the disease progresses the infected areas increase in diameter and the fungus penetrates deeper into the tuber. As a result it is not uncommon to find the whole surface of a potato discolored, shrunken, and shriveled. Mr. Melhus first found diseased specimens in the fall of 1912 in two barrels of potatoes shipped to Washington, D. C., from western New York. Later it was found on Irish Cobblers bought in the Washington market in December, 1912. These potatoes were raised in Maryland about 15 miles from the Capital. More recently the disease has been found on potatoes from Virginia, Vermont, Maine, Kansas, West Virginia, New York, Florida, and Wisconsin, which tends to show that it may be quite generally distributed thruout the eastern half of the United States.

In order to gain some idea as to the amount of silver scurf present on potatoes being used for seed purposes this spring several days were spent examining seed stock being planted in the vicinity of Norfolk, Va. In 10 of the 500 barrels examined the amount of silver scurf ranged from 25 to 90 per cent, and in another 10 it varied from about 1 to 25 per cent. Another collection, consisting of 25 barrels that had arrived from Aroostook County, Me., showed about 25 per cent of silver scurf. Still another collection from Maine needs mention. It consisted of 15 barrels grown in the south-central part of the state. The collection showed 25 per cent of silver scurf.

Experiments have been made with the use of formalin solution, similar in strength to that used for scab. One test showed that this treatment—8 per cent formalin solution—either killed or materially inhibited the growth of the fungus, while another test conducted by the officials of the Department of Agriculture did not produce so satisfactory results. Experiments are now in progress to determine further the value of formalin as a means of controlling this disease.

PROPOSED EXHIBITION OF ROAD MODELS

Arrangements are to be made by the

United States Department of Agriculture, thru Logan Waller Page, Director of the Office of Public Roads, to place on exhibition at the Panama-Pacific Exposition in 1915 the greatest collection of road models ever displayed in any part of the world. The models will furnish exact duplicates of the old Roman roads, French roads, and all of the various types of modern roads, together with miniature models of road machinery operated by electricity.

The Office of Public Roads made an exhibit of road models for the first time at the Alaska-Yukon-Pacific Exposition. The aim was to put on view such striking examples in miniature of road models that visitors would not only appreciate the beneficent effects of improved highways, but would, at the same time, be able to understand the methods of their construction.

Since the Alaska-Yukon-Pacific Exposition closed, the exhibit has been displayed at Omaha, Nebr., during the National Corn Exposition; at Knoxville, Tenn., during the Southern Appalachian Exposition; at Chicago, Ill., during the National Land and Irrigation Exposition; at New York City, during the Travel and Vacation Exposition and the Domestic Science Exposition; at Atlantic City, N. J., during the American Road Congress; at Lethbridge, Alberta, during the International Dryland Congress; at Buenos Aires, Argentina, dur-

Young man, would you accept and wear a fine tailor-made suit just for showing it to your friends? Or a Slip-on Raincoat Free? Could you use \$5 a day for a little spare time? Perhaps we can offer you a steady job? Write at once and get beautiful samples, styles and this wonderful offer.
Banner Tailoring Company, Dept. 321, Chicago

North Dakota Farmer: Fifty Cents a year; 3 yrs., \$1.00. Agents wanted.

W. F. JACOBS Livestock Auctioneer

Thoroughly Posted on Pedigress

Terms Reasonable LISBON, N. D. Write for dates

ST. PAUL UNION STOCKYARDS CO., SOUTH ST. PAUL, MINN.

Comparison of Receipts and Shipments of Livestock for June, 1913

	Receipts					
	Railroads	Cattle	Calves	Hogs	Sheep	Horses
C. R. I. & P.....	255	148	1576	66	.....	39
C. G. W.....	981	748	4418	690	25	121
C. M. & St. P.	2911	1099	17690	1330	137	425
M. & St. L.....	1459	656	12485	337	1	270
C., St. P., M. & O..	2983	1273	20187	1190	.....	450
C. B. & Q.....	120	125	907	597	29	23
M. St. P. & S. S. M.	4550	2668	12283	1262	2	389
Gt. Nor.....	5678	4153	26793	1649	4	699
Nor. Pac.....	4158	1551	12803	567	250	364
St. P. B. & T.....	.....	.....	.....	.....	.....	.....
Driven In.....	731	144	1222	152	1	.....
Total.....	23826	12565	110364	7840	449	2780
Increase over 1912	5607	.....	27670	.....	201	671
Decrease.....	.....	2540	.....	4232	.....	.....
Jan. 1 to date.....	155304	63363	614147	141985	2530	16062
Increase over 1912	25599	.....	34805	8013	.....	2168
Decrease.....	.....	2550	.....	.....	457	.....
Average Wts.....	741	200	249	84	.....	.....
	Shipments					
	Railroads	Cattle	Calves	Hogs	Sheep	Horses
C. R. I. & P.....	1035	23	.....	177	.....	28
C. G. W.....	2173	57	.....	.....	1	68
C. M. & St. P.	4377	452	13760	1769	100	308
M. & St. L.....	875	124	.....	140	.....	29
C., St. P., M. & O..	2769	1204	.....	536	16	104
C. B. & Q.....	1425	5	10730	.....	242	167
M. St. P. & S. S. M.	1182	84	.....	760	58	47
Gt. Nor.....	887	149	116	187	1	29
Nor. Pac.....	794	2	226	142	10	35
St. P. B. & T.....	.....	.....	.....	.....	.....	.....
Driven Out.....	560	197	35	82	5	.....
Total.....	16104	2296	24867	3793	433	815
Increase over 1912	4902	.....	6894	.....	115	213
Decrease.....	.....	311	.....	422	.....	.....
Jan. 1 to date.....	106372	15714	146417	98999	2150	5417
Increase over 1912	28133	5860	9632	20854	.....	1195
Decrease.....	.....	.....	.....	.....	848	.....

ing the International Agricultural Exposition; at Rurin, Italy, during the International Exposition; and at various other expositions and fairs. Since that time the collection has been greatly augmented, until every single type of road is now represented, and every known device used in the making of roads has been reproduced in miniature.

The models have also been displayed on road trains at all important places along the route of the Pennsylvania Railroad in the State of Pennsylvania, the entire system of the Southern Railway, the Frisco Lines, the Atlantic Coast Line, and the Nashville, Chattanooga & St. Louis Railway.

As a result of the instruction furnished by these road models, many farmers have joined forces to improve their own highways, and the road building movement has had a great impetus. When application for expert advice concerning any special road problem is made to the Department, the Office of Public Roads furnishes it without exacting any fees.

NAVY BUTTER KEEPS WELL Butter Made from Pasteurized Sweet Cream Classed in Highest Market Grade after Several Months in Cold Storage

Two hundred and seventy-seven samples of butter, packed for the Navy last spring and summer, were recently opened and examined by experts at the Department of Agriculture after having been kept in cold storage for from seven to ten months, and were found to be of fine quality, being graded as "extras," the highest market grade. The excellent keeping quality of this butter is attributed to the fact that it was made from pasteurized sweet cream.

The United States Navy requires about 600,000 pounds of butter annually, which must be of high grade and good keeping quality, as it is sometimes necessary to provision a fleet for a cruise of several months which may extend to tropical waters. At the request of the Navy Department the Dairy Division of the Bureau of Animal Industry, Department of Agriculture, has prepared the specifications for the Navy butter and supervised its manufacture in recent years.

SHROPSHIRE RAMS

I have forty-five thoroughbred Shropshire rams for sale. Coming two and three years old. Prices right. Call and see what I have to offer or write.

FORRESTER H. SMITH

Amenia - - North Dakota

The specifications call for fresh butter made during the early summer from pasteurized sweet milk or cream; it must be strictly "extra" in grade when scored at the time of packing; the moisture must not exceed 13 per cent in tinned butter and 14 per cent in tub butter; and there must be no preservative other than common salt, the quantity of which must be between the limits of two and one-half and three and one-quarter per cent at the time of packing. The entire process of manufacture, packing, etc., must meet the requirements of the Dairy Division inspectors, who have authority to reject any product that is not up to standard.

Navy butter in 1912 was all packed in



Dept. 8,

FANCY WORK BARGAIN
A Handsome Table Set, Violet, Daisy or Wild Rose design, consisting of one Centerpiece with Four Doilies to match, stamped on fine quality ART LINEN one-half yard long, all for 10 cents.

BERG POSTCARD SHOP
Hendrum, Minn



HARDY FRUITS FLOWERS
And ORNAMENTALS

Our Free Catalog Tells
How To Grow Them

Strand's Nursery, Box 32, Taylors Falls, Minn.

5-pound tins, which are lacquered both inside and outside and hermetically sealed. This butter was produced in five different creameries located in three states—California, Minnesota, and Pennsylvania.

The Government inspectors took a sample, daily, at each creamery, and these samples were placed in storage at a tem-

Pedigreed Stock

**PEDIGREED POLAND CHINA
HOGS & SHORT HORN
CATTLE FOR SALE. NOW
BOOKING ORDERS FOR
SPRING PIGS OF THE**

BEST KNOWN BREEDING

WHITE DENT SEED CORN FOR SALE

Booking orders for Barred Plymouth Rock Eggs & Mammoth Bronze Turkeys

Stock for Sale at all times. Pedigree
Furnished. Write your wants to

C. H. SCHUTT
R. R. 1, Fairmount, N. Dak.

ST. PAUL UNION STOCKYARDS CO., SOUTH ST. PAUL, MINN.

Comparison of the Origin and Disposition of Livestock for June, 1913

States	Origin of Livestock Received					Total Cars
	Cattle	Calves	Hogs	Sheep	Horses	
Minnesota	14794	10015	76331	5716	16	1881
Wisconsin	2312	1675	7100	1753	.....	219
Iowa	304	7	448	.....	.....	19
Far South	34	.....	.....	.....	19	2
So. Dakota	1077	116	6228	8	13	138
No. Dakota	5016	739	20191	360	38	499
Montana	50	12	66	.....	363	16
Far West	.....	.....	.....	.....	.....	.....
Manitoba & N. W. T.	.....	.....	.....	.....	.....	.....
Far East	.....	.....	.....	.....	.....	.....
Returned	239	1	.....	3	.....	6
Totals	23826	12565	110364	7840	449	2780
	Disposition of Livestock					
So. St. Paul P'k'rs.	7138	9124	85646	6671	.....	.....
City & State Butch.	639	125	.....	40	.....	23
Outside Packers	289	1052	23947	.....	.....	248
Minnesota	4675	499	377	530	49	160
Wisconsin	2728	85	.....	908	105	98
Iowa	3548	217	.....	317	.....	103
Nebraska	46	.....	.....	.....	.....	2
Kansas & Missouri	.....	.....	.....	.....	.....	.....
So. Dakota	114	255	.....	.....	.....	33
No. Dakota	588	6	.....	.....	.....	14
Montana & West	209	4	.....	.....	.....	6
Far South	.....	.....	.....	.....	.....	.....
Manitoba & N. W. T.	.....	.....	.....	641	.....	3
Mich. & E. Can.	.....	.....	.....	113	30	2
Chicago	848	8	64	1241	.....	39
Ills. (ex Chicago)	1268	44	.....	.....	59	48
Eastern Points	40	.....	479	.....	190	13
Returned	112	1	.....	3	.....	3
Totals	16104	2296	24867	3793	433	815

perature of zero or below. In order to test the keeping qualities of the butter the samples were taken out and scored when from 7 to 10 months old. The scoring was done by three experts independently, and the average scores ranged from 91 to 92½, the butter thus being in the grade known as "extras." The experts all agreed that it was a fine lot of storage butter, well made and very uniform.

The scientists of the Dairy Division have for several years been conducting experiments in making butter from pasteurized sweet cream as compared with that made from ripened or sour cream, and the results have demonstrated that butter made from sweet, pasteurized, clean-flavored cream is superior in quality and will keep longer in storage than butter made in the ordinary way.



Poultry Department



POULTRY NOTES

Mrs. G. W. Randlett

Nearly every one can keep hens but can every one make the hens keep them. Hens do not pay unless you give them suitable care.

The poultry like fresh straw now and then just as well as the cow likes to be well bedded.

The hens that are yarded should be given the lawn clippings. The daily ration is not complete without animal food in some form. Skim milk fed separately or with the mash furnishes a partial substitute for the meat ration.

Keeping too many breeds is a poor way to succeed. One or two varieties given the best of care is best.

A poultryman that is too careless to keep the hen-house free from vermin does not deserve to succeed.

Poultry should be kept off feed twenty-four hours before being killed and dressed for market.

Have some way of telling the oldest eggs and keep them sold.

Be sure to provide some shade in the runs or you will find that some of your chicks will not feather.

Chicks that have been drowned in watering tanks that someone forgot to empty would make a good-sized flock.

The hen is not lazy by nature and will surprise you in what they can do if given the right chance.

It costs no more to feed a hen that lays 150 eggs a year than one that lays 60.

If you do not like your breed change as soon as you can for you will never be successful with a breed you do not like. Do plenty of good thinking before you make the change as it is expensive not only in money expended but in the experience

you have already gained with the breed you have. Give the flock you have a square deal and be sure that the fault lies with them and not that you just want a change.

Poultry raising is what you make it. Lots of people make it drudgery by the attitude of mind rather than the amount of work they do.

Ducks

Duck raising is one of the most profitable branches of the poultry business.

For market purpose the Pekin duck is best. For eggs the Indian Runner takes the lead.

Indian Runners are good foragers and light eaters.

Ducks are never troubled with lice; neither do they have cholera or roup.

The Indian Runners grow very rapidly and begin laying early. They lay a large white egg. These eggs have a very fine flavor.

You will find the eggs not as fertile if you let the ducks grow thin.

Give the ducklings plenty of air and stuff them with feed. Sprinkle sand over their feed as this will be a sure way of their getting as much as they need.

Watch that the ducks have suitable attention and regular feed. A few well-cared for pays better than too many that are slighted.

Keep a good cat or two around the poultry plant as it will save you lots of trouble with mice and rats.

Good house, good feed, good tools, and cleanliness are four essentials of poultry keeping.

BRED TO LAY

And prize-winning strain. Barred Plymouth Rocks, White Orpington Indian Runner Ducks; Silver Spangled Hamburgs; Single Comb White and Brown Leghorns. Stock and Eggs at Reduced prices.

F. C. MITCHELL CROOKSTON, MINN.

THE BLUE RIBBON POULTRY FARM

Twenty Varieties Pure Bred Chickens, Ducks, Geese, Turkeys, Northern raised, fine plumage and 500 prizes to their good. Lowest prices on stock and eggs. Manufacturers of the Blue Ribbon Incubators and Brooders.

Blue Ribbon Poultry Farm
P. O. Box 427 Fargo, N. D.



LICE KILLER Liceoil, strongest lice killing compound made. Works like magic. Simply put a few drops in nests and hang bottle in coop. Powerful evaporating vapors go into feathers, cracks and crevices. No painting, spraying or dusting. Easy to use. Circular free. Pound bottle prepaid 50c. Money back if it fails. Agents wanted W. H. Metzger Co., No. 112 Quincy, Ill.

HATCHING EGGS of the Leading Strains and of the Prize Winning kind. Mammoth Bronze Turkeys, 12 Eggs \$1.50 Barred Plymouth Rock 15 Eggs, \$1.50: 50, \$3.00: 100, \$5.00. **SEED CORN FOR SALE.** Write all orders to C. H. SCHUTT R. R. 1 Fairmount, N. D.

ELEVEN YEARS A BREEDER

Pure-bred poultry: White Wyandottes, Toulouse Geese, Bourbon Red Turkeys and Pearl Guineas. Stock for sale. Write me your wants.
E. A. TOW, R. R. 3 LISBON, N. D.

EGGS FROM BUFF ORPINGTONS AND S. C. RHODE ISLAND REDS at special low prices Bred to lay. F. M. PEZALLA, Cayuga, N. D.

BRED TO LAY AND WIN

If you want Quality write
Enoch J. Peterson, Alexandria, Minn.
Formerly Peterson Bros., Harwood, N. D.

HAUSMANN POULTRY FARM

Breeders of W. Wyandottes and S. C. W. Leghorns
Hillsboro, - North Dakota

WHITE WYANDOTTES. If you want eggs from an early maturing, heavy laying, prize winning strain of White Wyandottes write me. I am developing a special laying strain by use of the trap nest. Prices reasonable. Write
M. C. JAMES, Valley City, N. D.

MAKE YOUR HENS LAY MORE EGGS
I have a method that will make your hens lay every day; it never fails. Write for it. 2c stamp.
MRS. B. F. WILCOXON,
North Platte, Neb., Dept. 8

FOR SALE. M. B. Turkey Toms, raised from our Diploma Stock, \$5.00 and up; also Eggs from 26 varieties poultry. Catalog free.
L. GULDEN, Osakis, Minn.

EGGS FOR HATCHING via Parcel Post or Express from all varieties: Rocks, Brahmas, Wyandottes, Leghorns, Orpingtons, Reds, Cochins, Bantams, Guineas, Geese, Turkeys, Ducks, Pigeons. Also Angus Cattle, Ponies, Duroc Jersey Hogs, Dogs, Cats, Rabbits, Pets. Wanted: Young Foxes.

ENVILLA STOCK FARM
Cogswell, North Dakota

REDUCED PRICES ON EGGS

For the months of June, July and August, only, we will sell White Wyandotte, Columbia Wyandotte and S. C. White Leghorn Eggs at \$1.25 per 15; \$3 for 50; \$6 for 100. For Light Brahma Eggs, \$2 for 15; \$3 for 30. Address,

Michael K. Boyer,
Box 17 - Hammonton, New Jersey

1900-C. C. DIBLEY & SON-1913

QUALITY—UTILITY—EXHIBITION

Single Comb Rhode Island Reds, Barred Plymouth Rocks, White Plymouth Rocks, Light Brahmas, Buff Wyandottes.

BIRDS OF HIGHEST QUALITY: Winners in the following shows 1913: Minneapolis and St. Paul, Minn., Fargo & Valley City, N. D. Mating list free. WOLVERTON, ROUTE 1, MINN.

School and Home

THE EDUCATION OF THE AMERICAN GIRL

By Student in Economic Department

On Wednesday evening, Jan. 15th, at the Grand, Miss Minna A. Stoner, Head of the Department of Home Economics of the Agricultural College addressed the State Grain and Stock Growers' Convention on the subject of "The Education of the American Girl." This subject presents unusual interest at the present time, due to the change in condition of woman's economic status and to the changed methods of living. Miss Stoner made clear the dignity and responsibility of the administration of a household and showed the vital social influence of its every-day tasks. Briefly the salient points of her lecture were as follows:

"The problem of the education of the American girl is of so great magnitude that it is almost impossible to know where to begin an adequate discussion of it within the very limited time at one's disposal. Patents are constantly asking these questions: How shall I educate my daughter? Does a high school and a college course pay for one who is obliged to remain on the farm or in business pursuits? Explain the advantages of a short course. Of what special advantage is a four years' course leading to a degree? Shall we select a liberal course or a vocational course for our daughter? What is the purpose of the home economics course?

"In order to answer these questions intelligently it is well to take a brief survey of the needs and advantages to be derived from pursuing a systematic course of study, no matter if the course is for a short or long period of time. In the outset every individual should be allowed to enter life with no less preparation than it is possible to obtain considering time, means, opportunity, physical and mental ability. The seemingly dull student, under care, may show marked aptitude in several subjects. Dr. Snodden, State Commissioner of Education of Massachusetts declared that some of the studies which contribute to liberal education may be presented in such a way as to give a basis or means of choice to subsequent vocational training. For many persons vocational education giving due allowance for expansion in related fields of science, art, history, literature, economics and civics may become an exceedingly effective means of liberalizing the minds of numerous types of boys and girls, especially those least capable of abstract thinking.

"Vocational education needs to be liberalized and liberal education needs to be vitalized by vocational education. No matter what course of study is selected it may be so conducted as to contribute to the broadest development of the student and to the making of a citizen as well as to the making of the worker. Two factors stand forth pre-eminently, individual adaptation, and service to the world or social efficiency.

"Education is not alone to prepare those who are bright and promising for greater things, but it is to help those less gifted to accomplish in life those things they would not have otherwise found possible.

"The shifting of vocational education from all fields of industry to the schools is one of the crucial problems in our present school organization, and calls loudly for the co-operation of all tax payers. No better investment can be made by the taxpayers of any state than to give to every youth an opportunity to secure the education each type is qualified to take.

"Owing to past methods influences, false views and absurd notions many of our young people seek the factory, the store or shop rather than the industrial pursuits of the farm and the work of the private home, because they think that it is more genteel and gives them more time for recreation and amusement after working hours. This idea will be eradicated if industrial training for all classes of people becomes a part of our entire school system. One of the greatest needs of our nation today is the conservation of the American girl, for in so doing the nation will conserve the American boy. David Starr Jordan in discussing this question recently, remarked that it is not forms of government by which men are made or unmade, it is the character and influence of their mothers and wives. The proper education of our American girl means more for the future than all conceivable legislative reforms. A generous education should be the birth-right of every daughter of the Republic.

"The difference between the girl who leaves the school or completes the work of the seventh and eighth grade or a high school course or a college course without any knowledge of practical affairs, and the one who has added a few terms or a few years to specific training marks the difference between success and failure in a large number of American homes.

"Home educators hold that it is the duty of the mother to train the daughter in the affairs of the home. Statistics prove

that this economic factor is often ignored in home training. Some mothers are appalled by the serious task, others are lured from it by the joys and liberties of society, therefore the child must be turned over to the teacher, and the school must aid the mother in her efforts to supply practical training, and help give to the home that quality of stimulation and joyousness which make the young and the old seek the home freely.

Investigators have estimated that the consumption of 95 per cent of all the world's goods is directly controlled by women, and the center of their consumption is the home. She should have some knowledge of wise expenditure. It is common enough to hear women argue that a close grappling with household economy is narrowing and not worthy of them. Why keep track of the cost of butter and eggs? Why calculate how much your income will allow you to buy? Is this more narrowing than the keeping track of the cost and quality of iron, wool, wheat, etc.? Only thru education can some of the present domestic difficulties be solved and the modern home made to contribute to the happiness and well being of those who dwell therein. It is the duty of the school to give to the American girl such training as will make her an intelligent consumer and cause her to see the importance of those subjects which have to do with the home and its affairs. The purpose of a home economics course which deals with the affairs of the home and the preparation of the home-maker for her profession strives to make this profession inspiring rather than a deadening drudgery.

"It is true that for ultimate success, man must know everything about some one thing. Woman must know something of everything. It is the extended field of duties which makes a great part of the intricacy of woman's existence. Therefore in the education of the American girl we are striving to train her in many subjects for the one ideal, the conservation of the home and the race, purposeful womanhood."

SUGGESTIONS FOR HOME DECORATION

Bessie Taylor, Department Home Economics, Agricultural College, North Dakota

To make the home serve its best purpose with reference to home life, comfort and economy, there must be orderly arrangement and correct selection of furnishings with reference to their beauty and use. To best accomplish this the following essentials must be considered—the place of the house, the exposure of its rooms, whether it is to be a town or country house and the needs of its occupants.

We will consider in this discussion some of the essential principles concerned in the furnishing of a moderate sized house presumably located in a small town or in the country.

Perhaps there is nothing which unconsciously causes more discomfort and irritation than a wrong use and combination of color. The eye is a nerve organ easily irritated by color and its irritation affects the whole body. For example perhaps there is some room in your home which does not suit you. It seems too dark or close or perhaps you cannot ascribe a reason to your feeling. Is it not perhaps the color or combination of colors which to you are irritating? Or, perhaps it is bad arrangement of furnishings. To use such conditions as a point of discussion, the exposure of the room whether it is north east, south, etc., should decide the color to be used on walls and floor. A north room which is always rather dark should be finished in bright warm colors. Rose pinks, lemon yellows and yellow tones with brown as the contrasting color are very good. The floor coverings should be much darker than the walls and the ceiling must be much lighter than either. A bit of brightness should be used in the furnishings if possible. Such a room costs no more than one finished in dark somber tones and will be a room pleasant to live in.

If the room has a south and easterly exposure the colors used can be cooler to offset the bright light from without. Soft blues, pleasing grays and gray greens are especially good. Brown, which combines well with green, can be used to good advantage in the furnishings. Plain walls make a better background than walls covered with figures which in wall papers are often large and ugly. Cortridge paper, calcimine and alabastine shades or paint are safe wall coverings. Many of the

calcimine and alabastine colors come in packages in powder form and should be mixed with water until desired shade is obtained; this can be tested by trying on a clean board and allowing it to dry. These shades come at fifty cents per package. Average cost of a room would be from \$1.50 to \$2. Alabastine shades are preferable to calcimine. Paint is often used and has the advantage of being washable.

The kitchen, the most important room in the house because the housewife must spend so much of her time there, should be made as bright and cheery as possible, giving the idea of absolute cleanliness. White or blue and white are best for walls. Calcimine or alabastine shades, paint and oil-cloth paper are all used—they are all cheap finishes. Oil cloth paper can be washed and makes a most satisfactory covering.

Bed rooms should be treated with much brighter colors than other rooms of the house. The exposure must be considered, but light shades of cool colors are used even in very bright rooms. Light grays with rose color make a very interesting combination for easterly rooms. Inexpensive cretonnes, dotted muslins, scrims, and pretty lawns can be used for curtains. Avoid cheap lace; such curtains can spoil an otherwise delightful room. Light pinks, blues, yellows, lavenders, greens and rose colors are also pretty bedroom colors. Dark and ugly furniture can be transformed by white paint or enamel. Advertisements of enamels can be found in any of the magazines. They are not expensive and can be applied at home. Jap-a-lac is perhaps one of the best known. It comes in cans of almost any size from ten cents to fifty cents. A ten-cent can will just about enamel a bed. There is absolutely no economy or sanitary value in dark ugly furnishings. Brightness and cheer are just as cheap and much more pleasant to live with.

Now as to furniture. Every piece should give the idea of simplicity, comfort and beauty. Mission and craftsman styles are very good as they combine the good qualities of beauty, simplicity, comfort and economy. A post card to any reputable furniture house advertised in magazines will bring a catalog.

standing. The height of the ironing board should be regulated to suit the convenience of the ironer. The early part of the day is the best time to iron. It is far better to take two mornings to finish the ironing than to keep at the task after physical weariness makes it a drudgery. Table linen should be sprinkled very damp. Bed linen and towels require very little dampening. Sprinkle dresses, waists, skirts, handkerchiefs, lace, and embroideries well. Roll each piece tight and place in clothes basket previously lined with paper and an old sheet. When the clothes are all placed in the basket, cover with a heavy cloth. Everything irons more easily if clothes are sprinkled the night before, thus distributing the dampness evenly. In the summer time clothes will mildew if allowed to stand too long before ironing. Sprinkle only as many pieces as can be easily ironed at one time.

See that the irons as well as the range are perfectly clean before placing them on to heat. Give the iron a good steady pressure, lifting from the board as little as possible and iron the piece until finished. Take the sheets first, giving extra pressure to the hems. Towels may be ironed on the sheets and in that way the sheets are ironed with less effort, moving the sheet after each towel is ironed. Pillow cases may be treated in the same way. The flannels, knit underwear and stockings are better from a hygienic standpoint folded and put away unironed. Iron table linens thoroly dry with good hot irons, using a strong pressure on the right side lengthwise and parallel with the selvage, this brings out the pattern and imparts a satiny gloss, leaving it dainty and soft. Iron napkins on the wrong side first and then finish on the right side. Handkerchiefs are treated in the same way. Iron all embroideries on the wrong side. Ruffles are ironed before the body of the garment, going well up into the gathers with the small point of the iron. Bands and hems are ironed on both sides. Colored clothes, lawns, percales and chambrays are ironed on the wrong side. Too much ironing will yellow thin fabrics and as they dry out quickly it is necessary to iron rapidly with a moderately hot iron. Skirts and dresses are easily and quickly ironed by ironing the waist part first, then slipping the board thru the skirt, taking care to have something beneath to prevent them from touching the floor. To iron a shirt waist, iron the collar and sleeves first, then the body of the waist. Press shoulder seams on the inside until dry. Hang on a coat hanger. The secret of ironing is to iron each piece dry, especially dresses, waists and skirts, taking care that the folds, seams and tucks in each garment are dry. As each piece is ironed hang on bars or line until thoroly dried and aired as a certain amount of moisture remains even after ironing and must be entirely removed before sorting the

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HOW TO IRON

Mrs. W. C. Palmer

Before beginning to iron have everything in readiness—paraffin or beeswax, a heavy paper on which to test and clean the irons, a dish of water, and small sponge for dampening surfaces which have become too dry to iron or need to be done over. Stand the ironing board where the light can fall directly upon it, with the ironing stand at the right and clothes basket on a chair at the left. Place a rug to stand on so the feet and limbs will not ache quite so much from the

clothes to put away. Have plenty of coat hangers for dresses, skirts and waists. They are cheap. Half the charm of any woman's or girl's appearance lies in the perfectly laundered garment and after it is once ironed care should be used to fold and hang it up properly and not lay it carelessly away.

SHORT COURSE IN HOME ECONOMICS AT THE AGRICULTURAL COLLEGE, N. D.

Winnie Wilcox, Student of Short Course, Mohall, North Dakota

It is a pleasure, indeed, to have the privilege and opportunity to tell the girls of the State of North Dakota about the Short Course which closed March 7 and which I attended at the Agricultural College.

Arriving at the College we found room and board in Ceres Hall or in residences near by.

A great many girls were enrolled for the Short Course, and as the work progressed, it became evident that Miss M. A. Stoner, Head of the Department of Home Economics, had prepared well for our coming, for each day some new work was presented which was to be of great use to us in our homes when we returned to them.

The Short Course in Home Economics as planned by Miss Stoner, gives an opportunity to girls and women who can not be away from their homes during the entire college year to spend a shorter time at the College and receive valuable instruction in household affairs. This course affords especially good information in cooking and sewing, and it also includes other subjects which the students may wish to take up.

In our classes we learned that home economics meant far more than simply cooking and sewing, for, in each day's work habits of accuracy were encouraged; observation, careful movements, order, neatness and cleanliness resulted from the daily practice in the laboratories. Furthermore, interest in the home was increased by talks on home duties; the relation of the home to the community, organization of girls' clubs, and civic responsibilities. Household efficiency and labor saving devices were also considered in these talks. These general lectures were given by Miss Stoner once a week and they were both useful and enjoyable.

A great deal of work had to be covered in these ten weeks as can be seen. However, in this short time, we succeeded in becoming acquainted with some of the "mysteries" of cooking, which to learn by experience are slow and unsatisfactory. We learned how to prevent custards and salad dressings from becoming watery and having a curdled appearance, how to avoid lumpy gravy, how to cook cereal foods (1 to 8 hours) in order to develop

flavor; how to cook fruits, dried and fresh; how to cook tough cuts of meat; how to prepare simple and inexpensive salads and desserts; how to make short and long process bread; how to make delicious candies and numerous other things which were very useful to us. The students were supplied with mimeograph sheets, which clearly stated the principle involved and the dishes were those which illustrated the principle. The recipes were also written on the sheets and some learned to appreciate this little poem given us by our instructor:

Beaten Biscuit

By Howard Weeden

Of course I'll gladly give de rule
I meks beat biscuit by,
Dough I ain't sure dat you will mek
Dat bread de same as I.

'Case cookin's like religion is—
Some's 'lected an' some ain't,
An' rules don't no more mek a cook
Den sermons mek a Saint.

Well, 'bout de 'grediences required
I needn't mention dem,
Of course you knows of flour and things,
How much to put, an' when;

But soon as you is got dat dough
Mixed up all smooove an' neat,
Den's when your genius gwine to show,
To get dem biscuit beat!

Two hundred licks is what I gives
For home-folks, never fewer,
An' if I'm 'spectin' company in,
I gives five hundred sure!

We also learned that the common foods, which all can have when living on the farm, can be made most attractive and wholesome. Our baked beans had an excellent flavor, because they were baked a long while; and the much despised hominy was made delicious by long cooking. We learned that some of the things to be accomplished in the preparation of food are the development of flavor, attractiveness, and palatability.

In our sewing class we made rapid progress also. All the different seams, hems, stitches, and everything pertaining to plain sewing were taught. "Grandma" won't have to make button-holes so frequently now, as we learned to make them ourselves. Most of the work on the garments was done by hand. This was slow and rather tedious, but quite satisfactory.

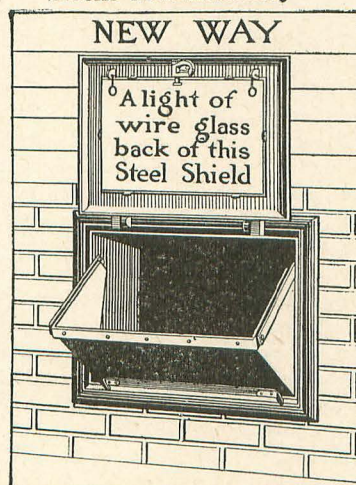
Once a week we discussed and took notes on "House Furnishings." This gave us valuable hints on planning and furnishing a home that would be simple, comfortable and attractive.

One of the things which interested me the most in this Short Course was the cooking lessons, especially the practice meals and the serving of after-dinner tea. In our practice meals, some of the girls were appointed cooks, some waitresses, and some hostesses, while the others were guests at the table. Everything had to be done or acted out as if it were a "real" meal. Miss Stoner and Miss Jensen were also present as guests to make it more formal and dignified.

The total number of students enrolled for the Short Course was thirty-eight. Of these, twenty-nine took the cooking

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A common sight where the
MAJESTIC is not known

lessons. Five were from Wells Co.; four from Bottineau; two from each of Cass, Barnes, Burke and Walsh; one from each of Steele, LaMoure, Nelson, Pierce, Benson, Pembina, Ramsey, Stutsman, Morton and Renville; and two students came from the State of Minnesota.

I fully enjoyed my work at the Agricultural College, and I feel assured that I can say as much for the rest of my class. I sincerely hope many other girls of North Dakota may have and may take the same opportunities as those which came to us.

SETTING THE TABLE FOR EVERY DAY MEALS

Mrs. G. W. Randlett

First cover the table with the silence cloth, then lay the table cloth on perfectly straight, letting it hang even on all sides of table.

A piece of linen embroidered in white for the center of the table with a low dish holding a simple bouquet is the most suitable decoration. The dishes should be arranged properly even tho the meal be very simple.

Arrange the plates an even distance apart, right side up, and an inch from edge of table.

Lay all silver ware in order in which it is to be used, also an inch from edge of table and parallel with each other. Knife at right with sharp edge towards plate. Spoons at side of knife with bowls up. Fork with tines up at left of plate. Glass at tip of knife. Napkin neatly folded or in ring at side of fork. Bread and butter plate or butter plate should occupy place just above napkin.

Bread and butter, water, salt and pepper, oil and vinegar, if needed, should be placed inside of plate line.

If coffee is served at table, place the coffee-pot and cups at right, and sugar and creamer in front of hostess.

THE OLD SUBJECT—WASHING

Grace Linder, Department of Home Economics, Agri. Col., N. D.

In the present age we are much concerned with keeping clean, and one great privilege of the rich and luxury of the poor is the wearing of clean clothes. Verily it does cost time, labor and money to keep the clothes clean. Laundrying has become considered of such great importance to human happiness and welfare that it now takes a place in the curriculum of some of the colleges and universities.

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There are those who may ask of what value is it to the individual and the answer seems not to be a difficult one. In the first place, the great number of homes at present must necessarily deal with the problem of cleaning the garments which become soiled by contact with the body, with dust and dirt from various sources. Then, too, institutions of various kinds—hospitals, residence halls, apartment buildings, laundries, etc., demand trained workers to preside over the laundrying for large numbers, and it is here that the college woman may find opportunity to put onto the market her college training in laundrying.

It is intended that the following remarks apply more particularly to the laundry work of the individual home.

Air, sunshine, water, and soap may be said to be essentials to successful laundrying. The best results are obtained if these four agencies are generously employed.

Water dissolves the dirt and carries it from the clothes, hence, a generous use of water is very desirable in the cleansing of clothes. Soft water is best for this purpose, but if it is not available, "Hard water" which has been softened by adding to it an alkali, such as washing soda, lye, borax or ammonia may be used. Care should be taken in the use of alkalies as the addition of too much will weaken the fabric and injure the hands. The amount to be used depends upon the degree of "hardness" of the water, and no hard and fast rule can be followed.

Before beginning to wash, sort the clothes in the following order:

Table linen and clean towels.

Bed linen.

Handkerchiefs. These should be soaked, washed and boiled separately if used by those having colds.

Soiled towels and cloths.

Stockings.

Woolens.

Colored clothes.

A good plan is to soak the clothes over night. To do this, wet the garment to be soaked, rub the soiled part with soap or soap solution and fold that part in. Fold and roll each garment separately. It is well to put the less soiled clothes in one tub and those which are much soiled into another tub. Cover the clothes with warm soapy water. Do not soak stockings, colored clothes or woolens.

The next morning proceed as follows:

Put water on to heat.

Make soap solution by shaving one bar washing soap in two or three quarts of cold water. Heat gradually until the soap is dissolved (about one hour).

Rinse clothes from the water in which they have soaked.

Pour warm water into a tub or washing machine. Add soap solution or soap to make a good suds. Put into this water the clothes rinsed from the tub in which

they were soaked. If a tub is used, rub clothes on the washboard, or if a washing-machine is used, wash about 10 or 15 minutes. Whenever the water becomes dirty, prepare fresh suds. Clothes can not be made clean in dirty water.

Wash woolens in luke warm water. Be sure that all water used in the washing of woolens is of the same temperature as the first water into which they are put. It is the change in temperature which causes woolens to felt and mat together.

BED MAKING

Mrs. G. W. Randlett

For health and comfort we now use a brass, white enameled, or iron bed in place of the heavy wooden beds. A spiral spring is used if one wants the best. If the mattress be of hair, wool, or cotton it should be the best of its kind. A mattress pad to cover the mattress. One pair of pillows 22x30 inches, a pair of blankets and a light comfort or extra pair of blankets as one wishes. Pillow-cases should be thirty-six inches long, sheets, when hemmed, two and three-quarters yards or more if one wants them extra long.

To make the bed, place mattress pad smoothly over the mattress, then spread

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the lower sheet right side up and tuck in all around. Place upper sheet wrong-side up with wide hem six inches above the top edge of mattress if you wish to fold the top sheet back over the blankets. I do not like the upper sheet so much longer than the blankets so I place the upper sheet six inches from the top edge of the mattress and tuck the lower end firmly under the mattress. Spread blankets with the open edges just below the wide hem in the upper sheet, smooth downwards and tuck in at bottom. With metal beds do not tuck in at sides. The spread should be large enough to hang over the foot and sides and cover all of top of mattress. Fold the comfort or extra blankets in some pretty way and lay across foot of bed.

The bedding needs constant attention. In order to prevent dust from coming up thru the springs to the mattress there should be a protector made of some wash material.

Open the windows in the room and turn the mattress back over the foot of the bed about every other day to get a good airing. Once a month take the mattress out-of-doors for a good sunning and beating. Take the blankets and comfort out oftener as they need more airing and beating than the mattress for they are more exposed to the dust. Sheets and pillow slips should always be clean and nicely laundered.

SEEK PROTECTION FOR BIRDS

Vigorous opposition to the amendment offered by Senator Clapp to the Underwood bill permitting the importation of feathers and plumes of game birds usually killed for food purposes and birds which are killed as pests, was expressed by a number of ornithologists and scientists before a subcommittee of the Senate Finance Committee at hearings held this week. The Underwood bill as it stands prohibits the importation of the feathers of all wild birds.

Dr. W. T. Hornaday of the New York Zoological Society stated that there were 154 species of game birds in this country, and they together with some 150 species native in foreign lands, would be threatened with extermination for the sake of their feathers if the Clapp amendment was accepted.

Senator Hoke Smith took an active interest in the hearings and stated that the wild birds were of inestimable value in preventing pests of insects. He spoke of the fact that the quail in the south were doing a good work killing the boll weevil. He said he was particularly interested in this legislation because as Governor of Georgia he had seen to it that the most stringent kind of laws were enacted to protect the wild birds. When birds became a pest, however, he said that they should be killed.

Dr. Hornaday declared that if the matter was put to a vote of the people of this

country it would be found that 90 per cent of them would support the legislation which is designed to protect the wild birds of this and other lands. Not more than 5 per cent of the women, except those thoughtless of uneducated in regard to the birds countenanced wearing feathers in their hats, he said.

EXPERIMENTS WITH MUSK MELONS

According to experiments reported to the Department of Agriculture by the Illinois Station, there may be wide differences in the relative effects of different fertilizers for Gem cantaloupes in different season. Under the conditions of the experiments, however, it was found that manuring in the hill proved far superior to broadcast manuring, except where a very large amount of manure can be broadcast. A large amount of manure used in the hills is conducive to the production of a large yield of early melons. Owing to the expense of the manure, however, from 2\$ to 3 tons of manure per acre carefully applied to the hills may produce a greater net profit than 47 to 12 tons per acre applied to the hills or from 16 to 20 tons applied broadcast. The addition of raw rock phosphate to a moderate amount of manure in the hills may increase the yield of early melons, the total yield, and the net profits in the field planted crop. While the use of a complete fertilizer consisting of st3amed bone, dried blood, and potassium sulphate, applied broadcast in addition to manuring in the hill may increase the total yield, the cost of such a fertilizer may render its use inadvisable. The application of the chemical fertilizer to the hills in place of manure is attended with great, especially to the field planted crop, where the yield may be greatly reduced as compared with no fertilizer treatment.

A NEW WEED EXTERMINATOR

Farmers living in that section of the country from Maryland to Missouri have more or less trouble with wild garlic. Besides being a weed in cultivated fields, it lowers the price of wheat with which it may be come mixed, while it also gives an unpleasant taint to the milk and flesh of animals feeding on the leaves, and to flour made from wheat containing the bulblets.

Owing to the remarkable tenacity of life possessed by the bulbs and bulblets, no practical method to rid the soil of the pest has theretofore been found, and in some localities fields have been abandoned and given over to the weeds.

About two years ago the Indiana Experiment Station commenced an investigation of the problem and after various chemical sprays and cultural methods had been tried to little purpose, suggestion was made by Mr. F. J. Pipal, assistant botanist in the Indiana Station and in direct charge

Public High Schools, "Some New Grasses for the South," and many others of equal interest.

This is the nineteenth volume of the Yearbook issued, the total editions of which have aggregated about 9,500,000 copies. The department's allotment is distributed principally to its correspondents who render valuable voluntary service, the bulk of the edition being distributed by Senators, Representatives and Delegates in Congress.

Receipts

CANNING OF FRUITS AND VEGETABLES

Success in canning depends upon the exclusion of air and complete sterilization. If air is to be excluded the jars and covers must be in perfect con-

dition and the rubber rings fresh and of a good quality.

Stewing Method

Sterilize fruit or vegetables by cooking in open kettle until tender, put into sterilized jars and seal. This is the method most commonly used.

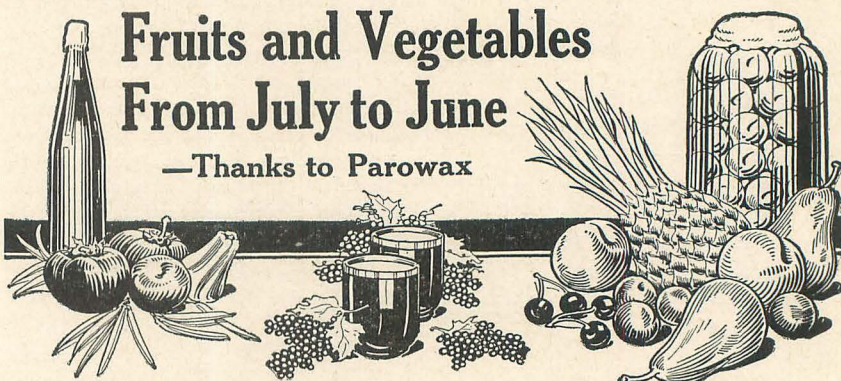
Baking Method

Fill the sterilized jars with fruit and cover with water or a thin sirup, 1-4 pound of sugar to each pound of fruit. Put covers on loosely and place the jars in the oven on a cloth in a pan of water. Let the softer fruits cook from ten to twenty minutes. The hard fruits will take a longer time. Adjust the rubbers, fill the jars with boiling water, or sirup, and fasten on the covers.

When canning vegetables add one teaspoonful of salt to each quart before filling the jar with water. Strong juiced vegetables should be parboiled five minutes and the water drained off before they are placed in jars. Most vegetables should cook from twenty to

Fruits and Vegetables From July to June

—Thanks to Parowax



Preserve all the fresh fruits and vegetables you like—now, while they are plentiful and cheap. Seal them with Parowax and they are bound to keep. Parowax will never fail you.

Think what you will save when winter comes! Think how much better "table" you can set—how your family will devour your own home-canned vegetables, preserves and jellies.

Parowax

is used as indicated in sealing jars, bottles and glasses. It's about the easiest, simplest work one can imagine. But so sealed, vegetables and fruits will keep *fresh indefinitely*.

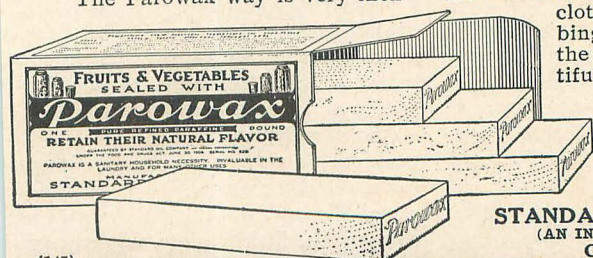
The Parowax way is very inex-

pensive. Two of the four handy layers contained in the 16-oz. carton will seal several gallons of fruit. And what's left over will be found invaluable in the laundry. Parowax shavings in the wash boiler clean and whiten clothes, without the rubbing. A little Parowax in the starch imparts a beautiful finish in the ironing.

Mrs. Rorer's Recipes

May we send you a book of free preserve and jelly recipes by this famous culinary expert?

STANDARD OIL COMPANY
(AN INDIANA CORPORATION)
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thirty minutes, a few may need longer cooking.

Steaming Method

Prepare the same as for baking and place on the shelf of a patent steamer, or on a rack or false bottom placed in a boiler containing three or four inches of water. Cover the boiler securely and allow the contents to steam from one to three hours, according to the hardness of the fruit or vegetable. Remove jars from boiler, fill with boiling water and seal.—Charlotte E. Carpenter, Colorado Agricultural College.

Raspberry Jam

Take equal weights of raspberries and sugar. Put the fruit in a large earthenware dish and cover it with the sugar; let it stand over night. In the morning turn it into a preserving kettle and simmer gently for an hour or longer. Remove all scum as it rises, and when done seal.

Raspberry Jelly to Keep

Equal quantities of raspberry and currant juice, or raspberry and apple juice, will make a firm delicious jelly. Cook the fruit a little (separately) mash it well and strain carefully. Measure the juice, and to every pint of raspberry and apple (or currant) juice allow one pint of sugar. Let the juice boil ten minutes, add the sugar and boil ten minutes longer. Try a little on a plate, if it becomes firm as it cools it is done, if not, cook a little longer.

This is a most pleasant jelly for invalids, and a tablespoonful of it stirred in a pint of cold water makes a very refreshing drink.

Gooseberry Conserve

Six quarts green gooseberries, two pounds seeded raisins, five pounds sugar, five oranges, juice of all; peel of three. Remove stems from berries and chop raisins rather coarsely. Cut oranges into halves, and remove juice and pulp, discarding seeds. Cook the peel of 3 of them until soft in enough boiling water to cover, changing the water once or twice. Drain, remove the white part from the peel by scraping with spoon, then cut it into narrow strips with scissors. Put berries, sugar, raisins, orange pulp, juice and rind in granite kettle; heat slowly to boiling point and boil twenty minutes, or until syrup is thick. Put in small jars and seal.

Gooseberry Jam

Do not pick the fruit until it is ripe, or nearly so. For each quart of stemmed berries add one pint sugar and crush both together in porcelain kettle. Place over fast fire and boil forty minutes. Remove from stove and seal at once.

Pie Plant Conserve

Ten cupfuls pie plant, eight cupfuls sugar, three oranges, juice and rind, one lemon, pulp and juice only, one-fourth

pound almonds blanched and chopped fine, a little salt. Boil the orange rind in three different waters; chop fine and add to the above. Boil the whole twenty-five minutes.

SUMMER DRINKS

Lemonade

To make good lemonade the lemons should be rolled on a hard surface until they are soft, the rinds grated, the lemons cut in halves and squeezed into a pitcher. The grated yellow rinds are added for the sake of their flavor. Pour on the required quantity of water and sweeten to taste. Mix it all thoroly, set the pitcher aside for half an hour, then strain thru a strainer and put in the ice. When serving add a freshly cut slice of lemon to each glass.

Welsh Nectar

Peel the yellow rind from three lemons, add two quarts of boiling water and two pounds of granulated sugar. When cold add the juice of the lemons, one pound of chopped and seeded raisins, and six quarts of water. Let it stand five days stirring twice a day, then strain and bottle.

Raspberry Vinegar

To two quarts and a half of ripe raspberries put one pint of best vinegar. Bruise the berries well and let stand for three days, then strain the juice thru a jelly bag and add its weight of sugar. Boil it, skim well, and bottle it closely. A pint of this will flavor two quarts of water.

Mead

Two pounds of white sugar, one pint of strained honey, one quarter of a pound of tartaric acid, and two quarts of boiling water. When cold flavor with lemon, sassafras, or any flavor preferred. Put three tablespoonfuls in a glass nearly full of ice water, and one quarter of a teaspoonful of baking soda, and drink while effervescing.

Harvest Drink

Boil one-half pound of oatmeal in five gallons of water for half an hour, adding a two-inch stick of cinnamon when half done; strain, add one-half ounce of tartaric acid and brown sugar to sweeten.

Egg Sauce for Baked Fish

One and one-half tablespoonfuls butter, one tablespoonful flour, one cupful milk, salt and pepper, three hard-boiled eggs. Melt butter, stir in flour until smooth. Add milk and seasoning and cook until smooth and creamy. Chop whites of eggs and stir into sauce, then grate yolks over the top.

Corn Griddle Cakes

Two cupfuls rich buttermilk, one-half teaspoonful salt, one level teaspoonful

soda, and cornmeal to make almost the consistency of mush. Have griddle hot and oiled. Drop on a spoonful and brown on both sides. When first dropped, flatten out with back of spoon. Tear open and butter. Never use a knife to open them. If made according to rule they will be light and fluffy—very delicious.

Bread Pie

One cupful water, one cupful sugar, one cupful bread crumbs, four tablespoonfuls vinegar and nutmeg to taste. This is like apple pie. Bake with two crusts. To be eaten when cold.

Ripe Currant Pie

One cupful ripe rurrants and one cupful sugar mashed well together. Bake in one crust; when done cover with a meringue of the whites of two eggs and two tablespoonfuls of sugar.

BIRD OR BOY

I wonder which I'd rather be,
A yellow birdie in a tree
Or just a little boy like me?

It must be fun to fly and fly,
And touch the clouds as you go by,
Up in the middle of the sky.

But, oh, the things you have to eat—
Just worms and crumbs instead of meat,
And never anything that's sweet!

I really think I'd rather be
An ordinary boy like me,
And have my bread and jam for tea.

—Little Folks.

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Strictly pure zinc makes up what lead lacks: strengthens where lead is weak—is harder—whiter—more clear—and beautiful.

White lead is just what its name implies, metal—*soft* metal, of great covering power.

Strictly pure linseed oil is the liquid that binds these natural partners together.

Zinc takes more oil to the pound than lead, and, because "oil is the life of paint" lead plus zinc makes the best paint known.

Baser metals are sometimes used in paints, but their value is unproved—and unless you are willing to lend your two or three-thousand-dollar house as a subject for experiment—better keep on the safe side and buy Mound City Horse Shoe Brand House Paint, which is made of really precious metals, in right proportions, and rightly ground in pure aged linseed oil.

Mound City Paint & Color Co.

Good Makers of Good Paints

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